

=> d que 128

L1 STR

Cy~G1 HO~B~OH HO~B~O~Ak Ak~O~B~O~Ak
 1 2 3 @4 5 6 @7 8 9 10 11 @12 13 14

15 16
 O~G2
 ~~~~~  
 B~O  
 @18      17

VAR G1=4/7/12/18

REP G2=(1-4) C

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 9

CONNECT IS E1 RC AT 10

CONNECT IS E1 RC AT 14

DEFAULT MLEVEL IS ATOM

GGCAT IS UNS AT 1

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 18

STEREO ATTRIBUTES: NONE

L3      13991 SEA FILE=REGISTRY SSS FUL L1  
 L4      8557 SEA FILE=HCAPLUS ABB=ON PLU=ON "LUMINESCENCE, CHEMILUMINESCEN  
          CE"+OLD,NT/CT  
 L5      2835 SEA FILE=HCAPLUS ABB=ON PLU=ON "CHEMILUMINESCENCE SPECTROSCOP  
          Y"+OLD,NT/CT  
 L6      103 SEA FILE=HCAPLUS ABB=ON PLU=ON "LUMINESCENCE, CHEMILUMINESCEN  
          CE (L) DETECTORS"/CT  
 L7      8557 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 OR L4  
 L8      1055 SEA FILE=HCAPLUS ABB=ON PLU=ON "IMMUNOASSAY (L) CHEMILUMINESC  
          ENCE"+OLD/CT  
 L9      49 SEA FILE=HCAPLUS ABB=ON PLU=ON "GAS CHROMATOGRAPHIC DETECTORS  
          (L) CHEMILUMINESCENCE"+OLD/CT  
 L10     938 SEA FILE=HCAPLUS ABB=ON PLU=ON CHEMILUMINESCENT SUBSTANCES+OL  
          D/CT  
 L11     28464 SEA FILE=HCAPLUS ABB=ON PLU=ON CHEMILUM?  
 L12     28962 SEA FILE=HCAPLUS ABB=ON PLU=ON (L4 OR L5 OR L6 OR L7 OR L8  
          OR L9 OR L10 OR L11)  
 L13     2461 SEA FILE=HCAPLUS ABB=ON PLU=ON "LUMINESCENCE, BIOLUMINESCENCE  
          "+OLD,NT/CT  
 L14     134 SEA FILE=HCAPLUS ABB=ON PLU=ON "IMMUNOASSAY (L) BIOLUMINESCEN  
          CE"+OLD/CT  
 L15     624 SEA FILE=HCAPLUS ABB=ON PLU=ON "LUMINESCENCE SPECTROSCOPY  
          (L) BIOLUMINESCENCE"+OLD/CT  
 L16     181 SEA FILE=HCAPLUS ABB=ON PLU=ON "LUMINESCENT SUBSTANCES (L)  
          BIOLUMINESCENT"+OLD/CT  
 L17     6672 SEA FILE=HCAPLUS ABB=ON PLU=ON BIOLUMIN?  
 L18     7004 SEA FILE=HCAPLUS ABB=ON PLU=ON (L13 OR L14 OR L15 OR L16 OR  
          L17)  
 L19     87681 SEA FILE=HCAPLUS ABB=ON PLU=ON FLUORESCENCE+NT/CT

L20 22181 SEA FILE=HCAPLUS ABB=ON PLU=ON FLUORESCENT SUBSTANCES+OLD,NT/  
CT  
L21 393258 SEA FILE=HCAPLUS ABB=ON PLU=ON FLUORES?  
L22 393333 SEA FILE=HCAPLUS ABB=ON PLU=ON (L19 OR L20 OR L21)  
L24 36 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 AND (L12 OR L18)  
L25 8 SEA FILE=REGISTRY ABB=ON PLU=ON L3 AND O2C2/ESS  
L26 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L25  
L27 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L26 AND (L12 OR L18 OR L22)  
L28 36 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 OR L27

=> d l28 ibib ab hitind hitstr 1-36

L28 ANSWER 1 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2004:722833 HCAPLUS  
DOCUMENT NUMBER: 141:217988  
TITLE: Signalling compounds for use in methods of detecting  
hydrogen peroxide  
INVENTOR(S): Akhavan-Tafti, Hashem; Eickholt, Robert A.; Lauwers,  
Kenneth S.; Handley, Richard S.  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 33 pp., Cont.-in-part of U.S.  
Ser. No. 371,053.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

| PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                      | KIND | DATE     | APPLICATION NO. | DATE     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| US 2004171098                                                                                                                                                                                                                                                                                                                                                                                                                   | A1   | 20040902 | US 2003-600928  | 20030620 |
| US 2004166539                                                                                                                                                                                                                                                                                                                                                                                                                   | A1   | 20040826 | US 2003-371053  | 20030220 |
| WO 2004074810                                                                                                                                                                                                                                                                                                                                                                                                                   | A2   | 20040902 | WO 2004-US2020  | 20040217 |
| W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG,<br>BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR,<br>CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES,<br>ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN,<br>IS, JP, JP, KE, KE, KG, KG, KP, KP, KR, KR, KZ, KZ, KZ, LC,<br>LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX,<br>MZ, MZ, NA, NI |      |          |                 |          |
| RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,<br>BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,<br>MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,<br>GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN,<br>GQ, GW, ML, MR, NE, SN, TD, TG                                                                                                                  |      |          |                 |          |

PRIORITY APPLN. INFO.: US 2003-371053 A2 20030220  
US 2003-600928 A 20030620

AB Compds. useful for detecting a source of hydrogen peroxide are disclosed wherein a signalling compound of the formula: Sig-B-(OR5)(OR6) is reacted with peroxide. Sig is an aromatic or heteroarom. ring group, B is a boron atom, and R5 and R6 are independently selected from hydrogen and lower alkyl groups and can be joined together as a straight or branched alkylene chain forming a five or six-membered ring. A detectable product compound Sig-OH is produced and detected by measuring color, **fluorescence**, **chemiluminescence**, or **bioluminescence**. The signalling compound itself does not possess the detectable property or does so only to a very weak degree. The compds. can be used for detection in assays for peroxide or peroxide-producing enzymes and in assays employing

enzyme-labeled specific binding pairs.

IC ICM C12Q001-26  
ICS C07F005-02

NCL 435025000; 549213000

CC 79-3 (Inorganic Analytical Chemistry)  
Section cross-reference(s): 7, 9

IT Colorimetric indicators  
    **Fluorescent indicators**  
    **Luminescence, bioluminescence**  
    **Luminescence, chemiluminescence**  
    (methods and compds. for detection of hydrogen peroxide)

IT 741252-93-7  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
    (methods and compds. for detection of hydrogen peroxide)

IT 68572-88-3P 349666-24-6P 741252-95-9P  
741252-96-0P 741252-97-1P  
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN  
    (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT  
    (Reactant or reagent); USES (Uses)  
    (methods and compds. for detection of hydrogen peroxide)

IT 68572-87-2P, 9-Phenanthreneboronic Acid 709022-63-9P  
741252-90-4P 741252-91-5P 741252-92-6P  
741252-98-2P 741252-99-3P 741253-00-9P  
741253-01-0P 741253-02-1P 741253-04-3P  
741253-14-5P 741253-15-6P 741253-17-8P  
741253-18-9P  
RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic  
preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
    (methods and compds. for detection of hydrogen peroxide)

IT 164461-18-1P, 1-Pyrenylboronic acid 741253-05-4P  
743459-14-5P  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
    (Analytical study); PREP (Preparation); USES (Uses)  
    (methods and compds. for detection of hydrogen peroxide)

IT 129058-56-6P 134519-12-3P 741252-94-8P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
    (Preparation); RACT (Reactant or reagent)  
    (methods and compds. for detection of hydrogen peroxide)

IT 538338-71-5P 741253-09-8P 741253-10-1P 741253-11-2P  
741253-12-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
    (Reactant or reagent)  
    (methods and compds. for detection of hydrogen peroxide)

IT 121445-45-2P 741253-06-5P 741253-07-6P  
741253-08-7P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
    (methods and compds. for detection of hydrogen peroxide)

IT 741252-93-7  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
    (methods and compds. for detection of hydrogen peroxide)

RN 741252-93-7 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

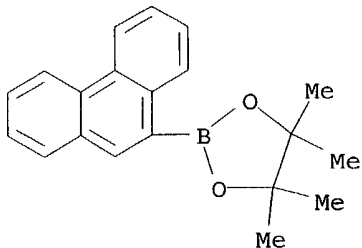
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 68572-88-3P 349666-24-6P 741252-95-9P  
741252-96-0P 741252-97-1P  
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN  
    (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT  
    (Reactant or reagent); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

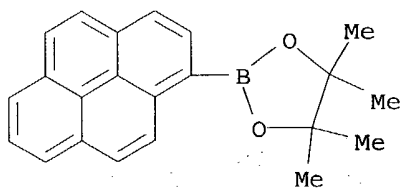
RN 68572-88-3 HCAPLUS

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(9-phenanthrenyl)- (9CI) (CA INDEX NAME)



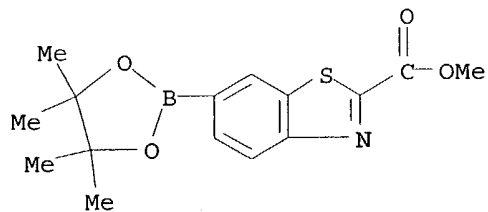
RN 349666-24-6 HCAPLUS

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-pyrenyl)- (9CI) (CA INDEX NAME)



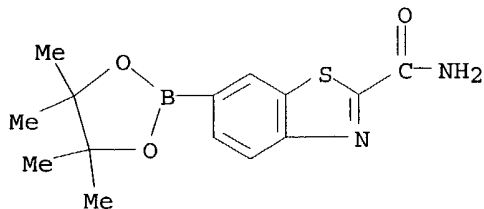
RN 741252-95-9 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

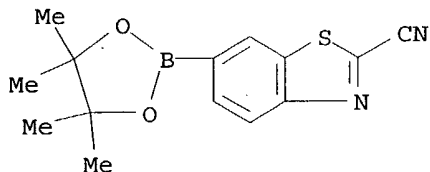


RN 741252-96-0 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED



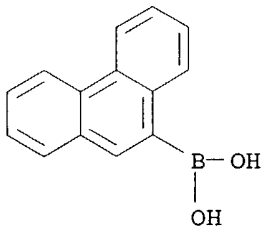
RN 741252-97-1 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



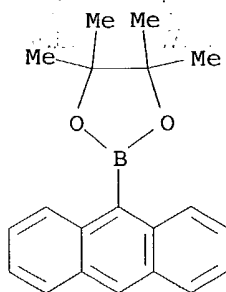
IT 68572-87-2P, 9-Phenanthreneboronic Acid 709022-63-9P  
741252-90-4P 741252-91-5P 741252-92-6P  
741252-98-2P 741252-99-3P 741253-00-9P  
741253-01-0P 741253-02-1P 741253-04-3P  
741253-14-5P 741253-15-6P 741253-17-8P  
741253-18-9P

RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses) (methods and compds. for detection of hydrogen peroxide)

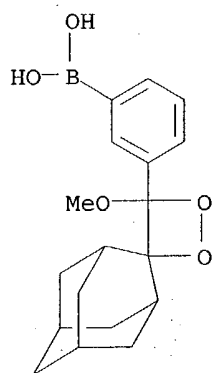
RN 68572-87-2 HCAPLUS  
CN Boronic acid, 9-phenanthrenyl- (9CI) (CA INDEX NAME)



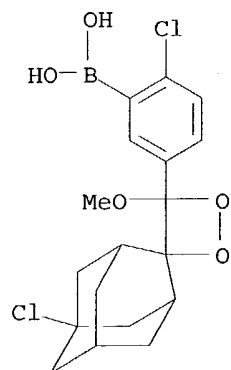
RN 709022-63-9 HCAPLUS  
CN 1,3,2-Dioxaborolane, 2-(9-anthracenyl)-4,4,5,5-tetramethyl- (9CI) (CA INDEX NAME)



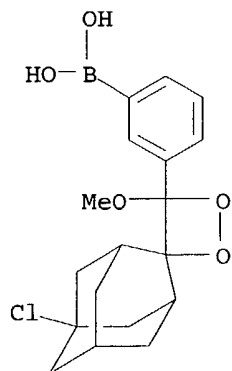
RN 741252-90-4 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



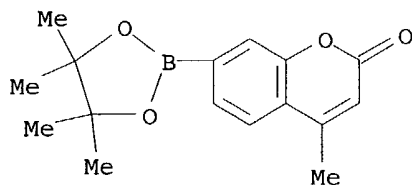
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CN INDEX NAME NOT YET ASSIGNED



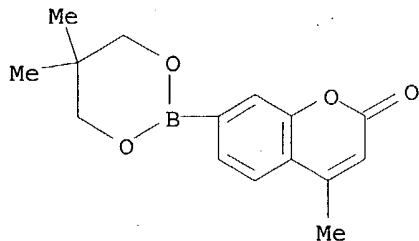
RN 741252-92-6 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



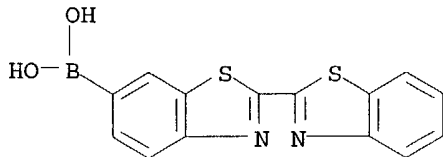
RN 741252-98-2 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



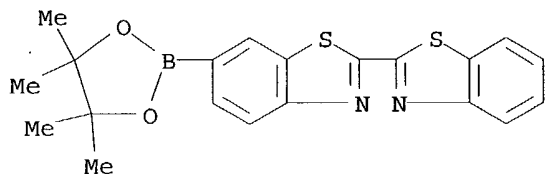
RN 741252-99-3 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



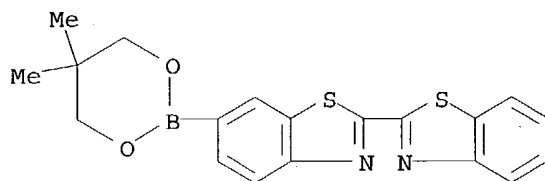
RN 741253-00-9 HCAPLUS  
CN Boronic acid, [2,2'-bibenzothiazol]-6-yl- (9CI) (CA INDEX NAME)



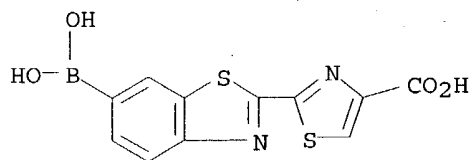
RN 741253-01-0 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



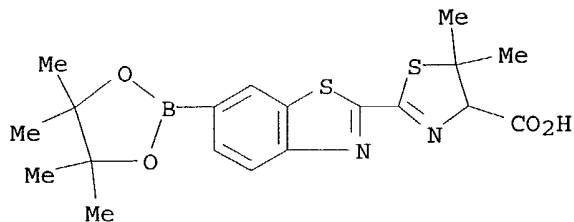
RN 741253-02-1 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



RN 741253-04-3 HCAPLUS  
CN 4-Thiazolecarboxylic acid, 2-(6-borono-2-benzothiazolyl)- (9CI) (CA INDEX NAME)

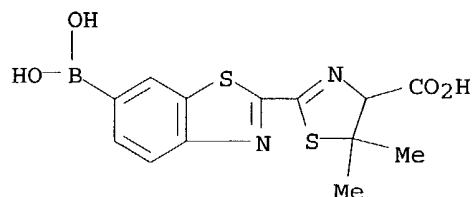


RN 741253-14-5 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED

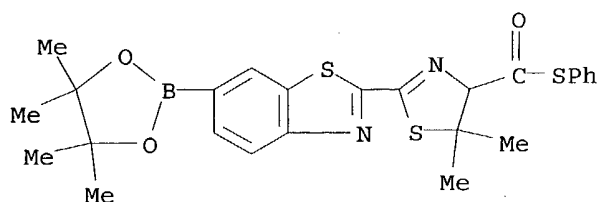


RN 741253-15-6 HCAPLUS  
CN 4-Thiazolecarboxylic acid, 2-(6-borono-2-benzothiazolyl)-4,5-dihydro-5,5-dimethyl- (9CI) (CA INDEX NAME)

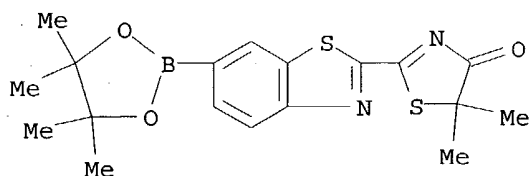




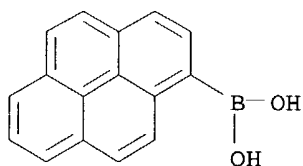
RN 741253-17-8 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



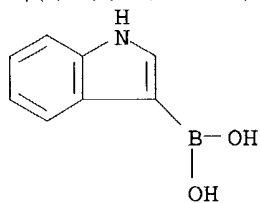
RN 741253-18-9 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



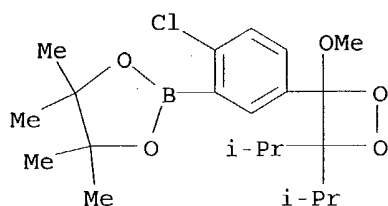
IT 164461-18-1P, 1-Pyrenylboronic acid 741253-05-4P  
743459-14-5P  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
(Analytical study); PREP (Preparation); USES (Uses)  
(methods and compds. for detection of hydrogen peroxide)  
RN 164461-18-1 HCAPLUS  
CN Boronic acid, 1-pyrenyl- (9CI) (CA INDEX NAME)



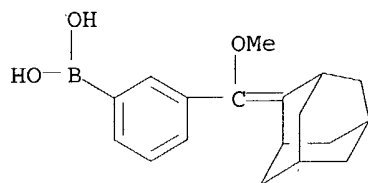
RN 741253-05-4 HCAPLUS  
CN Boronic acid, 1H-indol-3-yl- (9CI) (CA INDEX NAME)



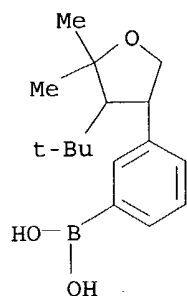
RN 743459-14-5 HCAPLUS  
 CN INDEX NAME NOT YET ASSIGNED



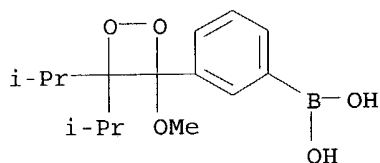
IT 741252-94-8P  
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (methods and compds. for detection of hydrogen peroxide)  
 RN 741252-94-8 HCAPLUS  
 CN INDEX NAME NOT YET ASSIGNED



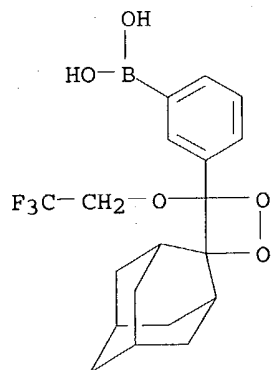
IT 741253-12-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (methods and compds. for detection of hydrogen peroxide)  
 RN 741253-12-3 HCAPLUS  
 CN Boronic acid, [3-[4-(1,1-dimethylethyl)tetrahydro-5,5-dimethyl-3-furanyl]phenyl]- (9CI) (CA INDEX NAME)



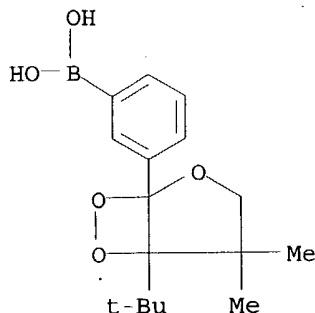
IT 741253-06-5P 741253-07-6P 741253-08-7P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (methods and compds. for detection of hydrogen peroxide)  
 RN 741253-06-5 HCAPLUS  
 CN INDEX NAME NOT YET ASSIGNED



RN 741253-07-6 HCAPLUS  
 CN INDEX NAME NOT YET ASSIGNED



RN 741253-08-7 HCAPLUS  
 CN INDEX NAME NOT YET ASSIGNED



L28 ANSWER 2 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:701711 HCAPLUS

DOCUMENT NUMBER: 141:217987

TITLE: Signalling compounds and methods for detecting hydrogen peroxide

INVENTOR(S): Akhavan-Tafti, Hashem; Eickholt, Robert A.; Lauwers, Kenneth S.; Handley, Richard S.

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 32 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                | KIND | DATE     | APPLICATION NO. | DATE     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|----------|
| US 2004166539                                                                                                                                                                                                                                                                                                                                                                                             | A1   | 20040826 | US 2003-371053  | 20030220 |
| US 2004171098                                                                                                                                                                                                                                                                                                                                                                                             | A1   | 20040902 | US 2003-600928  | 20030620 |
| WO 2004074810                                                                                                                                                                                                                                                                                                                                                                                             | A2   | 20040902 | WO 2004-US2020  | 20040217 |
| W: AE, AE, AG, AL, AL, AM, AM, AM, AT, AT, AU, AZ, AZ, BA, BB, BG, BG, BR, BR, BW, BY, BY, BZ, BZ, CA, CH, CN, CN, CO, CO, CR, CR, CU, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EC, EE, EE, EG, ES, ES, FI, FI, GB, GD, GE, GE, GH, GM, HR, HR, HU, HU, ID, IL, IN, IS, JP, JP, KE, KE, KG, KG, KP, KP, KR, KR, KZ, KZ, LC, LK, LR, LS, LS, LT, LU, LV, MA, MD, MD, MG, MK, MN, MW, MX, MX, MZ, MZ, NA, NI |      |          |                 |          |
| RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG                                                                                                        |      |          |                 |          |

PRIORITY APPLN. INFO.: US 2003-371053 A2 20030220  
US 2003-600928 A 20030620

AB Methods and compound useful for detecting a source of hydrogen peroxide are disclosed wherein a signalling compound of the formula: Sig-B-(OR)<sub>2</sub> is reacted with peroxide. Sig is a non-polymeric organic group, B is a boron atom, and each R is independently selected from hydrogen, alkyl and aryl groups and can be joined together as a straight or branched alkylene chain forming a ring or as an aromatic ring. A detectable product compound Sig-OH or Sig-O - is produced and detected by measuring color, absorbance, **fluorescence, chemiluminescence, or bioluminescence.** The signalling compound itself does not possess the detectable property or does so only to a very weak degree. The

methods can be used as a detectable signal in assays for peroxide or peroxide-producing enzymes and in assays employing enzyme-labeled specific binding pairs.

IC ICM G01N033-53

NCL 435007900

CC 79-3 (Inorganic Analytical Chemistry)

Section cross-reference(s): 7, 9

IT Colorimetric indicators

Fluorescent indicators

Luminescence, bioluminescence

Luminescence, chemiluminescence

(methods and compds. for detection of hydrogen peroxide)

IT 741252-93-7

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

IT 68572-88-3P 349666-24-6P, 4,4,5,5-Tetramethyl-2-(1-pyrenyl)-1,3,2-dioxaborolane 741252-95-9P 741252-96-0P 741252-97-1P

RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

IT 68572-87-2P, 9-Phenanthreneboronic Acid 709022-63-9P

741252-90-4P 741252-91-5P 741252-92-6P

741252-98-2P 741252-99-3P 741253-00-9P

741253-01-0P 741253-02-1P 741253-04-3P

741253-14-5P 741253-15-6P 741253-17-8P

741253-18-9P

RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

IT 164461-18-1P, 1-Pyrenylboronic acid 741253-05-4P

RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

IT 129058-56-6P, Methyl 6-hydroxybenzothiazole-2-carboxylate 134519-12-3P 741252-94-8P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(methods and compds. for detection of hydrogen peroxide)

IT 538338-71-5P 741253-09-8P 741253-10-1P 741253-11-2P

741253-12-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(methods and compds. for detection of hydrogen peroxide)

IT 121445-45-2P 741253-06-5P 741253-07-6P

741253-08-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(methods and compds. for detection of hydrogen peroxide)

IT 741252-93-7

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(methods and compds. for detection of hydrogen peroxide)

RN 741252-93-7 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

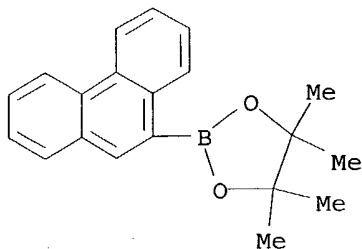
\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 68572-88-3P 349666-24-6P, 4,4,5,5-Tetramethyl-2-(1-pyrenyl)-1,3,2-dioxaborolane 741252-95-9P 741252-96-0P 741252-97-1P

RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN  
(Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT  
(Reactant or reagent); USES (Uses)  
(methods and compds. for detection of hydrogen peroxide)

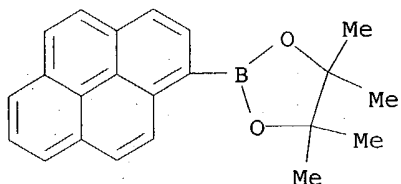
RN 68572-88-3 HCAPLUS

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(9-phenanthrenyl)- (9CI) (CA  
INDEX NAME)



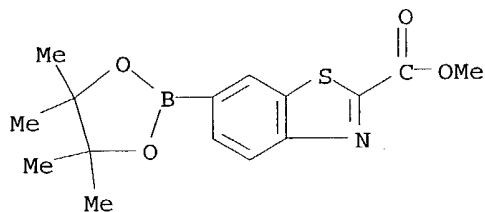
RN 349666-24-6 HCAPLUS

CN 1,3,2-Dioxaborolane, 4,4,5,5-tetramethyl-2-(1-pyrenyl)- (9CI) (CA INDEX  
NAME)



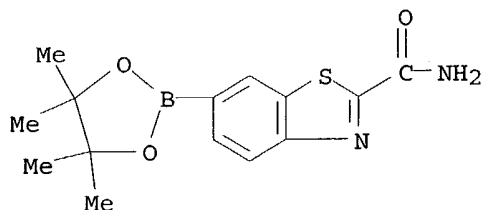
RN 741252-95-9 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

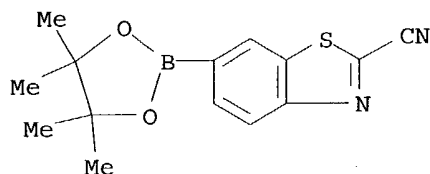


RN 741252-96-0 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED



RN 741252-97-1 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



IT 68572-87-2P, 9-Phenanthreneboronic Acid 709022-63-9P

741252-90-4P 741252-91-5P 741252-92-6P

741252-98-2P 741252-99-3P 741253-00-9P

741253-01-0P 741253-02-1P 741253-04-3P

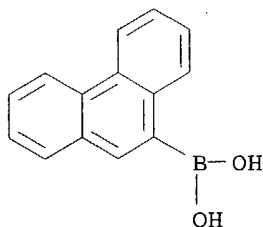
741253-14-5P 741253-15-6P 741253-17-8P

741253-18-9P

RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses) (methods and compds. for detection of hydrogen peroxide)

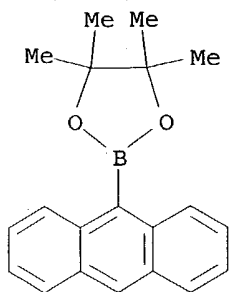
RN 68572-87-2 HCAPLUS

CN Boronic acid, 9-phenanthrenyl- (9CI) (CA INDEX NAME)

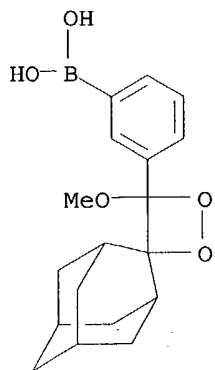


RN 709022-63-9 HCAPLUS

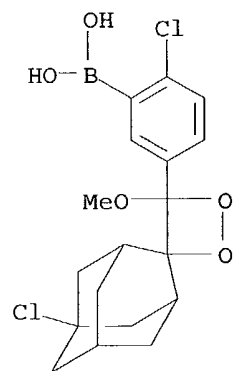
CN 1,3,2-Dioxaborolane, 2-(9-anthracenyl)-4,4,5,5-tetramethyl- (9CI) (CA INDEX NAME)



RN 741252-90-4 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED

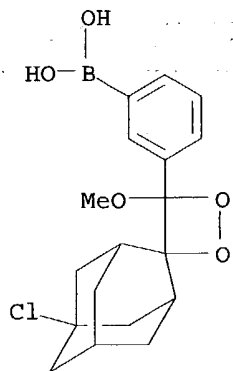


RN 741252-91-5 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED

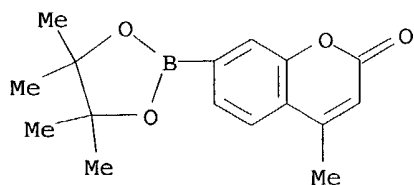


RN 741252-92-6 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED

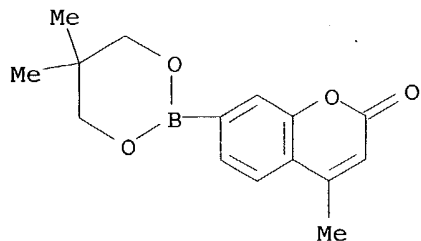




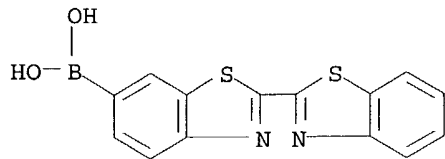
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CN INDEX NAME NOT YET ASSIGNED



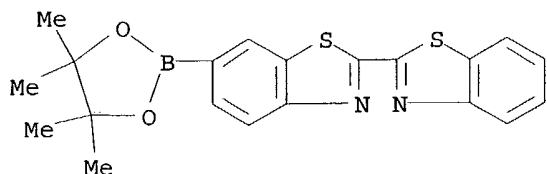
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CN INDEX NAME NOT YET ASSIGNED



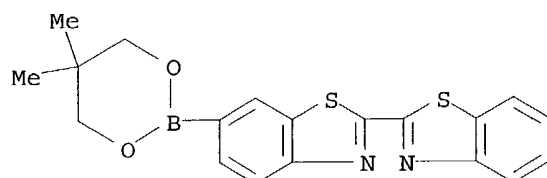
RN 741253-00-9 HCAPLUS  
CN Boronic acid, [2,2'-bibenzothiazol]-6-yl- (9CI) (CA INDEX NAME)



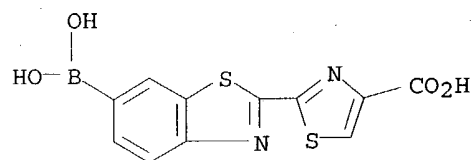
RN 741253-01-0 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



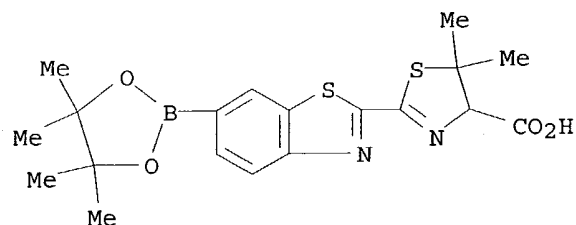
RN 741253-02-1 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



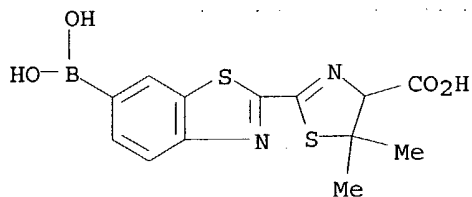
RN 741253-04-3 HCAPLUS  
CN 4-Thiazolecarboxylic acid, 2-(6-borono-2-benzothiazolyl)- (9CI) (CA INDEX NAME)



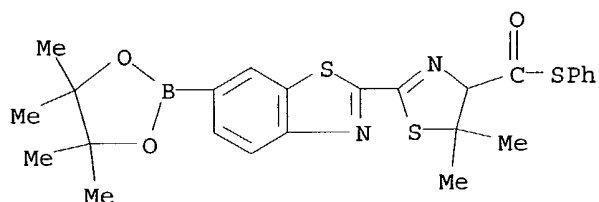
RN 741253-14-5 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



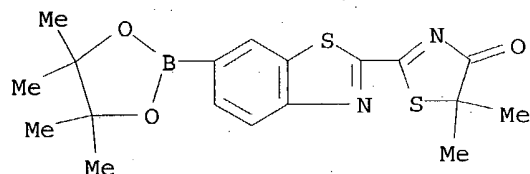
RN 741253-15-6 HCAPLUS  
CN 4-Thiazolecarboxylic acid, 2-(6-borono-2-benzothiazolyl)-4,5-dihydro-5,5-dimethyl- (9CI) (CA INDEX NAME)



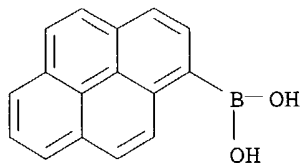
RN 741253-17-8 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



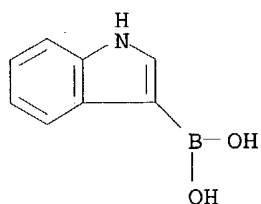
RN 741253-18-9 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



IT **164461-18-1P**, 1-Pyrenylboronic acid **741253-05-4P**  
RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
(Analytical study); PREP (Preparation); USES (Uses)  
(methods and compds. for detection of hydrogen peroxide)  
RN 164461-18-1 HCAPLUS  
CN Boronic acid, 1-pyrenyl- (9CI) (CA INDEX NAME)



RN 741253-05-4 HCAPLUS  
CN Boronic acid, 1H-indol-3-yl- (9CI) (CA INDEX NAME)

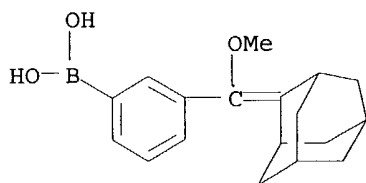


IT 741252-94-8P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(methods and compds. for detection of hydrogen peroxide)

RN 741252-94-8 HCAPLUS

CN INDEX NAME NOT YET ASSIGNED

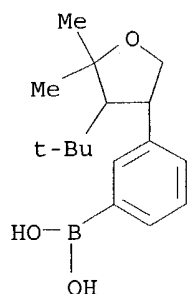


IT 741253-12-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(methods and compds. for detection of hydrogen peroxide)

RN 741253-12-3 HCAPLUS

CN Boronic acid, [3-[4-(1,1-dimethylethyl)tetrahydro-5,5-dimethyl-3-furanyl]phenyl]- (9CI) (CA INDEX NAME)

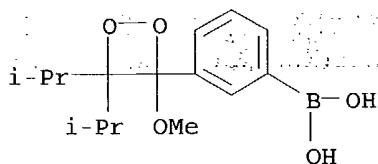


IT 741253-06-5P 741253-07-6P 741253-08-7P

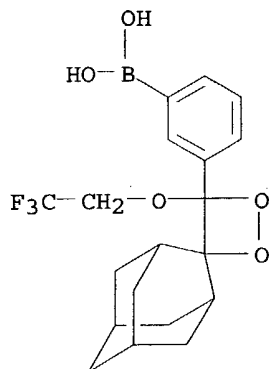
RL: SPN (Synthetic preparation); PREP (Preparation)  
(methods and compds. for detection of hydrogen peroxide)

RN 741253-06-5 HCAPLUS

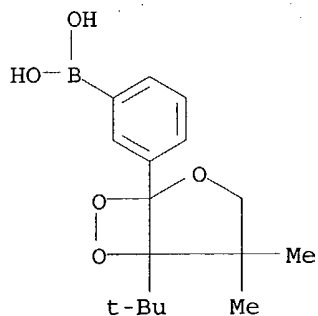
CN INDEX NAME NOT YET ASSIGNED



RN 741253-07-6 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED



RN 741253-08-7 HCAPLUS  
CN INDEX NAME NOT YET ASSIGNED

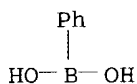


L28 ANSWER 3 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2004:294829 HCAPLUS  
DOCUMENT NUMBER: 141:6779  
TITLE: Well-divided and pH-dependent bimodal  
**chemiluminescence** of 2-methyl-6-phenyl-8-(4-  
substituted phenyl)-imidazo[1,2-a]pyrazin-3(7H)-ones  
induced by superoxide anion  
AUTHOR(S): Saito, Ryota; Inoue, Chizuru; Katoh, Akira  
CORPORATE SOURCE: Department of Applied Chemistry, Seikei University,  
Tokyo, 180-8633, Japan  
SOURCE: Heterocycles (2004), 63(4), 759-764

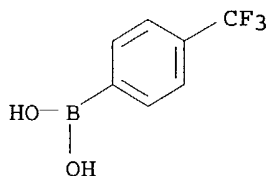
PUBLISHER: Japan Institute of Heterocyclic Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

- AB An unprecedented pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones (4-substituent = CF<sub>3</sub> for a, H for b) initiated by superoxide anion (O<sub>2</sub>•-) in phosphate buffer solns. is described. The intensity ratio of the bimodal luminescence due to two light-emitting species, the singlet-excited neutral 2-acetamido-5-phenyl-3-(4-substituted phenyl)pyrazine and its amide anion, varied as the pH rose. The percentage of the anionic luminescence intensity [I<sub>anion</sub>/(I<sub>neutral</sub>+I<sub>anion</sub>)] for a showed a good linear correlation with the pH value, demonstrating its usefulness as a pH indicator as well as an O<sub>2</sub>•- probe.
- CC 22-9 (Physical Organic Chemistry)  
Section cross-reference(s): 9
- IT Substituent effects  
(electronic, on **chemiluminescence**; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT Bathochromic effect  
(in anion **chemiluminescence** vs. neutral; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT Acid-base indicators  
**Luminescence, chemiluminescence**  
(well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 98-80-6, Phenylboronic acid 24241-18-7, 2-Amino-3,5-dibromopyrazine  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(Suzuki coupling; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 625848-14-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(Suzuki coupling; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 694495-36-8 694495-37-9  
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)  
(anionic emitting species; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 41270-70-6P 694495-32-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(heterocyclization; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 74152-22-0 694495-35-7  
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

- (neutral emitting species; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 694495-33-5P 694495-34-6P  
 RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (target indicator; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 11062-77-4, Superoxide  
 RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)  
 (well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 625848-24-0P  
 RL: BYP (Byproduct); PREP (Preparation)  
 (well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 78-98-8, Pyruvaldehyde 128796-39-4, 4-(Trifluoromethyl)phenylboronic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- IT 98-80-6, Phenylboronic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (Suzuki coupling; well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- RN 98-80-6 HCAPLUS  
 CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



- IT 128796-39-4, 4-(Trifluoromethyl)phenylboronic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (well-separated and pH-dependent bimodal **chemiluminescence** of 2-methyl-6-phenyl-8-(4-substituted phenyl)imidazo[1,2-a]pyrazin-3(7H)-ones induced by superoxide anion)
- RN 128796-39-4 HCAPLUS  
 CN Boronic acid, [4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 4 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:981793 HCAPLUS

DOCUMENT NUMBER: 141:25070

TITLE: **Chemiluminescent** properties of blue fluorophores containing naphthalene unit

AUTHOR(S): Cheon, Jong-Woo; Lee, Chil-Won; Gong, Myoung-Seon; Geum, Neri

CORPORATE SOURCE: Department of Chemistry, Dankook University, Chungnam, 330-714, S. Korea

SOURCE: Dyes and Pigments (2004), 61(1), 23-30

CODEN: DYPIDX; ISSN: 0143-7208

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:25070

AB Various conjugated blue fluorophores containing naphthalene moiety in biphenyl analogs were synthesized via Suzuki reaction for the blue **chemiluminescent** fluorophore. UV-Vis absorption, photoluminescence and **chemiluminescence** were measured and evaluated. The fluorophores displayed blue photoluminescence in solution with maximum around 375-410 nm. Sodium salicylate-catalyzed reaction of hydrogen peroxide with bis(2-carbopentyloxy-3,5,6-trichlorophenyl) oxalate (CPPO) produced a strong **chemiluminescent** blue light emission with wavelengths of 398-420 nm in the presence of the fluorophores. The **chemiluminescent** intensity decayed exponentially and the glow of **chemiluminescence** maintained for more than 4 h and was visible with naked eye.

CC 41-2 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

ST **chemiluminescence** naphthalene deriv blue chromophore

IT Luminescence

Luminescence, **chemiluminescence**

(**chemiluminescent** properties of blue fluorophores containing naphthalene unit)

IT Molecular structure-property relationship

(luminescence; **chemiluminescent** properties of blue fluorophores containing naphthalene unit)

IT 75203-51-9

RL: NUU (Other use, unclassified); USES (Uses)

(**chemiluminescent** properties of blue fluorophores containing naphthalene unit)

IT 96589-92-3P 142450-41-7P 699008-32-7P 699008-33-8P 699008-34-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(**chemiluminescent** properties of blue fluorophores containing naphthalene unit)

IT 92-86-4, 4,4'-Dibromobiphenyl 13922-41-3, 1-Naphthaleneboronic

acid 32316-92-0, 2-Naphthaleneboronic acid 121602-03-7

156641-98-4 188200-91-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(**chemiluminescent** properties of blue fluorophores containing naphthalene unit)

IT 13922-41-3, 1-Naphthaleneboronic acid 32316-92-0,

2-Naphthaleneboronic acid 156641-98-4

RL: RCT (Reactant); RACT (Reactant or reagent)

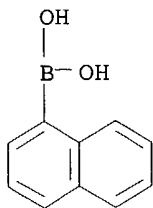
(**chemiluminescent** properties of blue fluorophores containing



naphthalene unit)

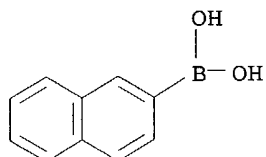
RN 13922-41-3 HCAPLUS

CN Boronic acid, 1-naphthalenyl- (9CI) (CA INDEX NAME)



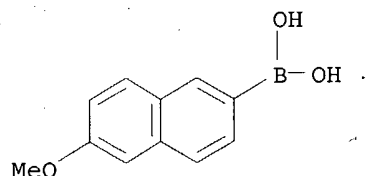
RN 32316-92-0 HCAPLUS

CN Boronic acid, 2-naphthalenyl- (9CI) (CA INDEX NAME)



RN 156641-98-4 HCAPLUS

CN Boronic acid, (6-methoxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

25

THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 5 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:746761 HCAPLUS

DOCUMENT NUMBER: 139:395735

TITLE: Synthesis of 3,7-dihydroimidazo[1,2a]pyrazine-3-ones  
and their **chemiluminescent** propertiesAUTHOR(S): Adamczyk, Maciej; Akireddy, Srinivasa Rao; Johnson,  
Donald D.; Mattingly, Phillip G.; Pan, You; Reddy,  
Rajaratnam E.CORPORATE SOURCE: Department of Chemistry, Diagnostics Division, Abbott  
Laboratories, Abbott Park, IL, 60064-6016, USA

SOURCE: Tetrahedron (2003), 59(41), 8129-8142

CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 139:395735

AB A series of 3,7-dihydroimidazo[1,2a]pyrazine-3-ones, e.g., I, were prepared from 2-amino-3,5-dibromopyrazine. The concise synthesis of coelenterazine I, in three steps, 48% overall yield and >99% purity exemplifies the strategy. Further, the synthetic approach facilitated the regiospecific incorporation of carboxyalkyl linkers on the 3,7-dihydroimidazo[1,2a]pyrazine-3-one nucleus that are required for bioconjugation. Peroxymonocarbonate, an electrophilic oxidant, was used to initiate pseudo-flash' **chemiluminescence** from this class of mols.

CC 26-9 (Biomolecules and Their Synthetic Analogs)  
 Section cross-reference(s): 28

ST aminodibromopyrazine arylboronic acid Suzuki coupling palladium; aminoaralkylbromopyrazine prepn; arylboronic acid aminoaralkylbromopyrazine Suzuki coupling palladium; amino substituted pyrazine prepn; pyrazinamine ketoacetal condensation; imidazopyrazinone prepn **chemiluminescence**; pyrazinone imidazo prepn **chemiluminescence**; coelenterazine total synthesis **chemiluminescence**

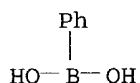
IT **Luminescence, chemiluminescence**  
 (preparation and **chemiluminescent** properties of dihydroimidazo[1,2a]pyrazinones via cyclocondensation of aminodisubstituted pyrazines with  $\alpha$ -ketoacetals)

IT 625848-45-5P 625848-46-6P 625848-47-7P 625848-48-8P 625848-49-9P  
 625848-50-2P 625848-51-3P 625848-52-4P 625848-53-5P 625848-54-6P  
 625848-55-7P 625848-56-8P 625848-57-9P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
 (preparation and **chemiluminescent** properties of dihydroimidazo[1,2a]pyrazinones via cyclocondensation of aminodisubstituted pyrazines with  $\alpha$ -ketoacetals)

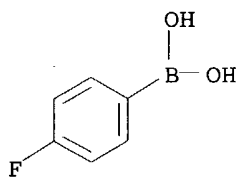
IT 98-80-6 1765-93-1 5720-05-8 24241-18-7,  
 2-Amino-3,5-dibromopyrazine 128796-39-4 159191-56-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of aminoarylpyrazines via palladium catalyzed Suzuki coupling of aminodibromopyrazine with arylboronic acids)

IT 98-80-6 1765-93-1 5720-05-8  
 128796-39-4 159191-56-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of aminoarylpyrazines via palladium catalyzed Suzuki coupling of aminodibromopyrazine with arylboronic acids)

RN 98-80-6 HCAPLUS  
 CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)

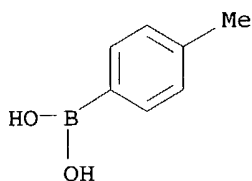


RN 1765-93-1 HCAPLUS  
 CN Boronic acid, (4-fluorophenyl)- (9CI) (CA INDEX NAME)



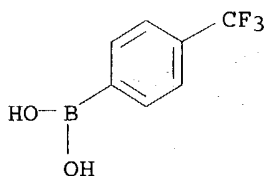
RN 5720-05-8 HCAPLUS

CN Boronic acid, (4-methylphenyl)- (9CI) (CA INDEX NAME)



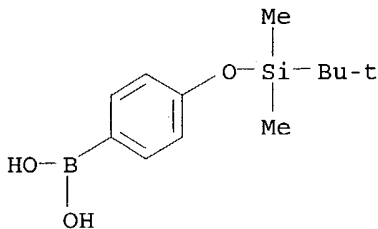
RN 128796-39-4 HCAPLUS

CN Boronic acid, [4-(trifluoromethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 159191-56-7 HCAPLUS

CN Boronic acid, [4-[[[1,1-dimethylethyl)dimethylsilyl]oxy]phenyl]- (9CI)  
(CA INDEX NAME)



REFERENCE COUNT:

47

THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 6 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:617590 HCAPLUS

DOCUMENT NUMBER: 139:292201

TITLE: Diversity Synthesis via C-H Bond Functionalization:

Concept-Guided Development of New C-Arylation Methods  
for Imidazoles

AUTHOR(S): Sezen, Bengue; Sames, Dalibor  
CORPORATE SOURCE: Department of Chemistry, Columbia University, New  
York, NY, 10027, USA  
SOURCE: Journal of the American Chemical Society (2003),  
125(35), 10580-10585  
CODEN: JACSAT; ISSN: 0002-7863  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 139:292201

AB Herein, the concept of systematic derivatization of a structural motif via C-H bond functionalization was formulated. This concept may not only serve as a blueprint for new strategies in diversity synthesis but also provide systematic guidance for the identification of unsolved and important synthetic challenges. To illustrate this point, 2-phenylimidazole was selected as the core motif for this study, a choice inspired by numerous azole-based synthetics, including pharmaceuticals (compound SB 202190), and also fluorescent and **chemiluminescent** probes. It was possible to show that systematic and comprehensive arylation of the 2-phenylimidazole core was feasible, and in the context of this study new arylation methods were developed. The direct 4-arylation of free 2-phenylimidazole was achieved with iodoarenes as the aryl donors in the presence of palladium catalyst (Pd/Ph<sub>3</sub>P) and magnesium oxide as the base. A complete switch from C-4 to C-2' arylation was accomplished using a ruthenium catalyst [CpRu(Ph<sub>3</sub>P)<sub>2</sub>Cl] and Cs<sub>2</sub>CO<sub>3</sub>. The corresponding transformations for (N,2)-diphenylimidazole (C-5 and C-2' arylation) were accomplished via the palladium-based method [Pd(OAc)<sub>2</sub>/Ph<sub>3</sub>P/Cs<sub>2</sub>CO<sub>3</sub>] and a rhodium-catalyzed procedure [Rh(acac)(CO)<sub>2</sub>/Cs<sub>2</sub>CO<sub>3</sub>], resp. All of the arylation methods described herein demonstrated broad synthetic scope, high efficiency, and exclusive selectivity. Furthermore, these new methods proved to be orthogonal to one another and applicable to sequential arylation schemes. With these methods in hand, arrays of arylated imidazoles may now be accessed in a direct manner from 2-phenylimidazole. This strategy stands in sharp contrast to a traditional approach, wherein a distinct and multistep synthesis would be required for each analog.

CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 25

IT 98-80-6, Boronic acid, phenyl- 104-92-7, 1-Bromo-4-methoxybenzene 108-86-1, Bromobenzene, reactions 371-40-4, 4-Fluorobenzenamine 402-43-7, 1-Bromo-4-(trifluoromethyl)benzene 403-46-3, 4-Fluoro-N,N-dimethylaniline 455-14-1, 4-(Trifluoromethyl)benzenamine 591-50-4, Iodobenzene 615-37-2, 1-Iodo-2-methylbenzene 670-96-2, 2-Phenyl-1H-imidazole 696-62-8, 1-Iodo-4-methoxybenzene 1120-87-2, 4-Bromopyridine 13329-40-3, 1-(4-Iodophenyl)ethanone

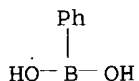
RL: RCT (Reactant); RACT (Reactant or reagent)  
(diversity synthesis via carbon-hydrogen bond functionalization;  
concept-guided development of carbon arylation methods for imidazoles)

IT 98-80-6, Boronic acid, phenyl-

RL: RCT (Reactant); RACT (Reactant or reagent)  
(diversity synthesis via carbon-hydrogen bond functionalization;  
concept-guided development of carbon arylation methods for imidazoles)

RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 7 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:319853 HCAPLUS

DOCUMENT NUMBER: 138:337834

TITLE: Preparation of aryl- $\beta$ -diketones as luminous compounds and labeling reagents using the same

INVENTOR(S): Saito, Michihiro; Pretsch, Ernoe

PATENT ASSIGNEE(S): Hitachi High Technologies Corporation, Japan

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.                                                                                                                | KIND | DATE     | APPLICATION NO. | DATE       |
|---------------------------------------------------------------------------------------------------------------------------|------|----------|-----------------|------------|
| WO 2003033447                                                                                                             | A1   | 20030424 | WO 2002-JP10511 | 20021010   |
| W: CN, JP, KR, US                                                                                                         |      |          |                 |            |
| RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR                            |      |          |                 |            |
| EP 1437338                                                                                                                | A1   | 20040714 | EP 2002-772986  | 20021010   |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK |      |          |                 |            |
| PRIORITY APPLN. INFO.:                                                                                                    |      |          | JP 2001-312562  | A 20011010 |
|                                                                                                                           |      |          | WO 2002-JP10511 | W 20021010 |

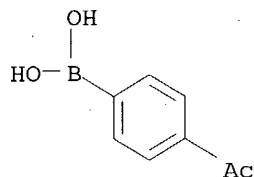
OTHER SOURCE(S): MARPAT 138:337834

AB Disclosed are compds. represented by the following general formula  
 $\text{R}-\text{Y}-(-\text{X}-\text{Phe}-\text{COCH}_2\text{COCnF}_{2n+1})_m$  (wherein R represents hydrogen, alkyl, Ph or a group capable of binding to a protein, a peptide, an amino acid, a nucleic acid or a base; Y represents  $\text{CH}_2$ , a carbon ring or a heterocycle; X represents O, S, NH,  $\text{CH}_2$ ,  $\text{OCH}_2$ , CONH or NHCO; Phe represents phenylene; n is an integer of from 1 to 5; and m is 1, 2 or 3), luminous complexes comprising the above compds. with rare earth ions, labeling reagents comprising the compds. or luminous complexes as described above, and a method of labeling a protein, a peptide, an amino acid, a nucleic acid or a base using the above labeling reagents. When these compds. are complexed with metal ions, they emit fluorescence, delayed fluorescence, or phosphorescence and are suitable as labeling agents for time-resolved fluorometry, delayed phosphorimetry, or energy-transfer fluorometry used in nucleic acid detection, immunoassay, or **chemiluminescent** method. Thus, a mixture of 1,2-bis(bromomethyl)benzene 5.0, 4-acetylphenylboronic acid 13.6,  $\text{CsCO}_3$  18.5 g, 50 mL THF, and 5 mL  $\text{H}_2\text{O}$  was stirred at  $70^\circ$  for 30 min, treated with 1.5 g  $\text{PdCl}_2(\text{dppf})\cdot\text{CH}_2\text{Cl}_2$  [dppf = 1,1'-bis(diphenylphosphino)ferrocene], and heated for 24 h to give, after workup and silica gel chromatog., 15% 1,2-bis(4-acetylbenzyl)benzene (I). I 300,  $\text{C}_{37}\text{H}_{30}\text{O}_2$  440, NaOMe 99 mg, and 12 mL  $\text{Et}_2\text{O}$  were stirred at room temperature for 1 day to give, after workup and silica

gel chromatog., 100 mg 1,2-bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)benzyl]benzene (II). When complexed with  $\text{EuCl}_3\cdot 6\text{H}_2\text{O}$ ,

1,2-bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)phenoxy]benzene (preparation given) exhibited the highest signal intensity in time-resolved fluorometry among other  $\beta$ -ketones including II. Immunoassay of human anti- $\alpha$ -fetoprotein (AFP) antibody and anti-human C reactive protein (CRP) antibody by time-resolved fluorometry was carried out using streptavidin labeled by aryl- $\beta$ -ketone-europium-complexes.

IC ICM C07C049-813  
ICS C07C049-84; C07C233-61; C07C225-22; C07C323-22; C07D233-60; G01N033-533  
CC 25-16 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 9, 78  
IT 75-36-5, Acetyl chloride 91-13-4, 1,2-Bis(bromomethyl)benzene  
101-81-5, Diphenylmethane 120-80-9, 1,2-Dihydroxybenzene, reactions  
356-27-4 403-42-9, 4'-Fluoroacetophenone 13759-92-7, Europium chloride hexahydrate **149104-90-5**, 4-Acetylphenylboronic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of aryldiketones and their complexes with rare earth elements as luminescent labeling reagents for protein, peptide, amino acid, and nucleic acid)  
IT **149104-90-5**, 4-Acetylphenylboronic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of aryldiketones and their complexes with rare earth elements as luminescent labeling reagents for protein, peptide, amino acid, and nucleic acid)  
RN 149104-90-5 HCAPLUS  
CN Boronic acid, (4-acetylphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 8 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2003:98493 HCAPLUS  
DOCUMENT NUMBER: 139:159426  
TITLE: Synthesis, structure-activity relationship and in vitro evaluation of coelenterazine and coelenteramine derivatives as inhibitors of lipid peroxidation  
AUTHOR(S): Burton, Maggi; De Tollenaere, Catherine; Cavalier, Jean-Francois; Marchand, Cecile; Dussart, Frederique; Marchand-Brynaert, Jacqueline; Rees, Jean-Francois  
CORPORATE SOURCE: Laboratory of Cell Biology, Institut des Sciences de la Vie, Universite Catholique de Louvain, Louvain-la-Neuve, B-1348, Belg.  
SOURCE: Free Radical Research (2003), 37(2), 145-158  
CODEN: FRALER; ISSN: 1071-5762  
PUBLISHER: Taylor & Francis Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 139:159426

AB Coelenterazine (2-p-hydroxybenzyl-6-(3'-hydroxyphenyl)-8-benzyl-3,7-dihydroimidazo[1,2-a]pyrazin-3-one, CLZn) and coelenteramine (2-amino-3-benzyl-5-(4'-hydroxyphenyl)-1,4-pyrazine CLM), first described as luciferin and etioluciferin, resp., of **bioluminescent** systems in marine organisms are endowed with antioxidant properties. This study was aimed at understanding the structural basis of their chain-breaking properties and at designing new compds. with improved antioxidative properties. For this, a series of 2-amino-1,4-pyrazine derivs. and their related imidazolopyrazinones were synthesized and examined for their capacity to inhibit lipid peroxidn. in linoleate micelles subjected to the peroxidizing action of AAPH. Structure-activity relation studies indicated that the reduction of the peroxidn. rate by CLM is mainly determined

by

the concomitant presence of 5-p-hydroxyphenyl and 2-amino groups in para position. The lipophilic character of substituents also affected this effect. All imidazolopyrazinones induced a lag-time before the onset of the peroxidn. process. The hetero-bicyclic imidazolopyrazinone moiety appears as the main contributor to this activity while phenol groups play little role in it. Phenol groups were required for the reduction of the peroxidn. rate after the lag-phase. The introduction of a supplementary p-hydroxyphenyl substituent at C8 position did not increase chain-breaking properties. The substitution of the C5-p-hydroxyphenyl with a catechol moiety or the introduction of a second amino group on the pyrazine ring yielded the most active compds., superior to imidazolopyrazinones and reference antioxidants like epigallocatechin gallate, vitamin E and trolox. The strong antioxidant properties of 2,6-diaminopyrazines are not dependent on the presence of hydroxyl groups indicating that their reaction mechanism differs from that of 2-amino-1,4-pyrazine derivs.

CC 1-3 (Pharmacology)

Section cross-reference(s): 28

IT 78-98-8, Methylglyoxal 98-80-6, Phenyl boronic acid 100-39-0, Benzyl bromide 4774-14-5 5720-06-9, 2-Methoxyphenyl boronic acid 5720-07-0, 4-Methoxyphenyl boronic acid 10365-98-7, 3-Methoxyphenyl boronic acid 14508-49-7 59489-71-3 67602-05-5 350819-24-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis, structure-activity relationship of coelenterazine and coelenteramine derivs. as inhibitors of lipid peroxidn.)

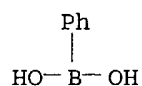
IT 98-80-6, Phenyl boronic acid 5720-06-9, 2-Methoxyphenyl boronic acid 5720-07-0, 4-Methoxyphenyl boronic acid 10365-98-7, 3-Methoxyphenyl boronic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis, structure-activity relationship of coelenterazine and coelenteramine derivs. as inhibitors of lipid peroxidn.)

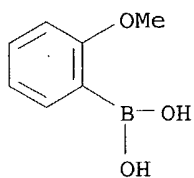
RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)

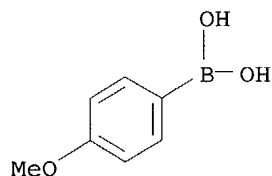


RN 5720-06-9 HCAPLUS

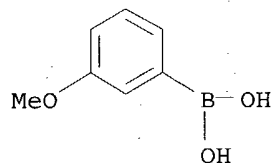
CN Boronic acid, (2-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 5720-07-0 HCAPLUS  
 CN Boronic acid, (4-methoxyphenyl)- (9CI) (CA INDEX NAME)



RN 10365-98-7 HCAPLUS  
 CN Boronic acid, (3-methoxyphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 9 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:843411 HCAPLUS

DOCUMENT NUMBER: 136:163456

TITLE: Effect of solvents and polymers on the boronic acid enhanced peroxidase-luminol-peroxide reaction

AUTHOR(S): Maglia, Giovanni; Kricka, Larry J.

CORPORATE SOURCE: Department of Pathology and Laboratory Medicine, University of Pennsylvania Medical Center, Philadelphia, PA, 19104, USA

SOURCE: Bioluminescence & Chemiluminescence, Proceedings of the International Symposium, 11th, Pacific Grove, CA, United States, Sept. 6-10, 2000 (2001), Meeting Date 2000, 227-230. Editor(s): Case, James F. World Scientific Publishing Co. Pte. Ltd.: Singapore, Singapore.

CODEN: 69CAFI

DOCUMENT TYPE: Conference

LANGUAGE: English

AB The effect of both low mol. weight (MW) solvents and high MW polymer mols. (including non-hydroxy-polymers) on the 4-bromophenyl boronic acid (PBBA) enhanced **chemiluminescent** luminol-horseradish peroxidase (HRP)



reaction was studied. All solvents decreased the light emission from the luminol-PBBA-HRP reaction, but some solvents (e.g., dioxane) eliminated light emission even at very low concentration (8%). However, all of the solvents

tested altered the kinetics of light emission by slowing down the normal rate of light emission. Some of the polymers tested both increased and stabilized the light emission from the PBBA enhanced HRP catalyzed luminol-hydrogen peroxide reaction.

CC 9-2 (Biochemical Methods)

Section cross-reference(s): 7

IT 64-17-5, Ethanol, analysis 67-56-1, Methanol, analysis 67-68-5, DMSO, analysis 75-12-7, Formamide, analysis 78-92-2, sec-Butanol 107-21-1, Ethylene glycol, analysis 123-51-3, Isoamyl alcohol 123-91-1, Dioxane, analysis 124-68-5, 2-Amino 2-methyl propanol 5467-74-3, 4-Bromophenyl boronic acid 25232-41-1, Poly 4-vinylpyridine 29382-68-1, Polyvinyl hydrogen phthalate 53230-15-2, Polyvinyl phthalate 54692-47-6, Zelec DP 106392-12-5, Pluronic F-68 177772-70-2, Betz 2666 396097-89-5, Avitex R

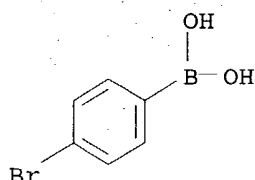
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(effect of solvents and polymers on boronic acid enhanced peroxidase-luminol-peroxide reaction)

IT 5467-74-3, 4-Bromophenyl boronic acid

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(effect of solvents and polymers on boronic acid enhanced peroxidase-luminol-peroxide reaction)

RN 5467-74-3 HCAPLUS

CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 10 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:831916 HCAPLUS

DOCUMENT NUMBER: 136:146979

TITLE: Chemical studies on the chiral indanone derivatives as the inhibitor of Renilla luciferase

AUTHOR(S): Wu, Chun; Nakamura, Hideshi; Murai, Akio; Inouye, Satoshi

CORPORATE SOURCE: Division of Biomodeling, Department of Applied Molecular Biosciences, Graduate School of Bioagricultural Sciences, Nagoya University, Nagoya, 464-8601, Japan

SOURCE: Tetrahedron (2001), 57(47), 9575-9583  
CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The bioluminescence reaction of coelenterazine involves an

oxidative process. To investigate the reaction mechanism, the authors synthesized three mechanism-based inhibitors with an indanone core structure. The inhibitors exhibited the competitive inhibition of the Renilla luciferase reaction. The (-)-4-benzyl-2-(4-hydroxybenzyl)-2-hydroxymethyl-6-(4-hydroxyphenyl)-indan-1-one showed the significant enantio-selectivity of the inhibition and its absolute configuration was assigned as the R-configuration. These inhibitors could be useful probes to study the catalytic environment in the coelenterazine-luciferase reaction.

CC 7-3 (Enzymes)

Section cross-reference(s): 25

IT 4755-50-4, 4-Dimethylaminobenzoyl chloride 5720-07-0,  
4-Methoxyphenylboronic acid 5892-99-9, 4-Bromo-N,N-diethylbenzamide  
13623-25-1, 6-Methoxy-indan-1-one 15097-38-8, Benzyl  
(triphenylphosphoranylidene)acetate

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant; preparation of chiral indanone derivs. and inhibition of Renilla luciferase)

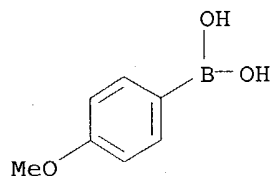
IT 5720-07-0, 4-Methoxyphenylboronic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant; preparation of chiral indanone derivs. and inhibition of Renilla luciferase)

RN 5720-07-0 HCAPLUS

CN Boronic acid, (4-methoxyphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 11 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:828964 HCAPLUS

DOCUMENT NUMBER: 135:355008

TITLE: Determination of glycated hemoglobin by one-read method using boronate affinity capture and labeled anti-hemoglobin antibody

INVENTOR(S): Lee, Evelyn Mok; Westerberg, David A.; Yao, Haiou H.; Adamczyk, Janina; Christensen, Melissa A.

PATENT ASSIGNEE(S): Abbott Laboratories, USA

SOURCE: U.S., 25 pp., Cont.-in-part of U.S. 6,162,645.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|------------|------|----------|-----------------|----------|
| US 6316265 | B1   | 20011113 | US 1999-399219  | 19990917 |
| US 6162645 | A    | 20001219 | US 1997-816237  | 19970313 |
| ES 2206900 | T3   | 20040516 | ES 1998-910389  | 19980313 |

WO 2001020338 A1 20010322 WO 2000-US24159 20000905  
W: CA, JP  
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

EP 1212623 A1 20020612 EP 2000-964939 20000905  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY

JP 2003509693 T2 20030311 JP 2001-523873 20000905  
PRIORITY APPLN. INFO.: US 1997-816237 A2 19970313  
US 1999-399219 A 19990917  
WO 2000-US24159 W 20000905

AB A glycosylated Hb assay utilizes a simple procedure for the determination of standardized GHb in whole blood samples correlated to the Diabetes Control and Complications Trial (DCCT). First, a lysed whole blood sample is incubated with a solid phase that is coupled with boronic acid or similar boronate compound through covalent linkage chemistries known in the art. Next, a labeled antibody to human Hb is added and the resulting signal is directly proportional to the GHb in the sample. The advantages of measuring GHb using a single determination include high precision and, since the assay is easily automatable, high throughput. With automation, this assay can also be consolidated with other testing on one analyzer. The method according to the various embodiments of the invention thus eliminates the need for two measurements: one for GHb and another for total Hb (THb).

IC ICM G01N033-72  
NCL 436067000  
CC 9-10 (Biochemical Methods)  
IT **Chemiluminescent substances**  
Fluorescent substances  
Radioactive substances  
(as labels; determination of glycosylated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

IT **30418-59-8DP**, m-Aminophenylboronic acid, immobilized  
RL: ARG (Analytical reagent use); DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(affinity complex; determination of glycosylated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

IT **98-80-6D**, Phenylboronic acid, compds., immobilized 10043-35-3D, Boric acid, immobilized 13780-71-7D, Boronic acid, compds., immobilized **14047-29-1D**, 4-Carboxyphenylboronic acid, immobilized **101084-81-5D**, immobilized  
RL: ARG (Analytical reagent use); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(affinity complex; determination of glycosylated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

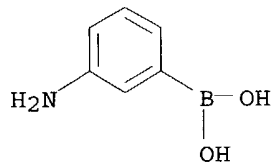
IT 107-15-3, Ethylenediamine, reactions 4097-89-6, Tris(2-aminoethyl)amine 9003-01-4, Polyacrylic acid 9004-32-4, Carboxymethylcellulose 12768-31-9, Carboxymethylamylose **66472-86-4**, m-Aminophenylboronic acid (hemisulfate) 330582-39-3, AM 40-500 330582-42-8, SP1267 330582-49-5, SP1340 330582-60-0, AB007C  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(determination of glycosylated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

IT **30418-59-8DP**, m-Aminophenylboronic acid, immobilized  
RL: ARG (Analytical reagent use); DEV (Device component use); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)

(affinity complex; determination of glycated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

RN 30418-59-8 HCAPLUS

CN Boronic acid, (3-aminophenyl)- (9CI) (CA INDEX NAME)



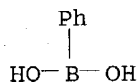
IT 98-80-6D, Phenylboronic acid, compds., immobilized  
 14047-29-1D, 4-Carboxyphenylboronic acid, immobilized  
 101084-81-5D, immobilized

RL: ARG (Analytical reagent use); DEV (Device component use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(affinity complex; determination of glycated Hb by one-read method using boronate affinity capture and labeled anti-Hb antibody)

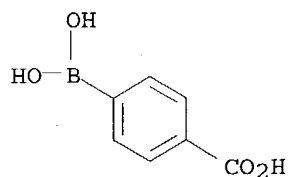
RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



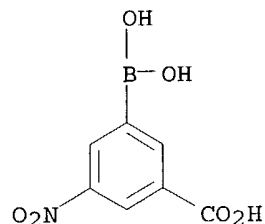
RN 14047-29-1 HCAPLUS

CN Benzoic acid, 4-borono- (9CI) (CA INDEX NAME)



RN 101084-81-5 HCAPLUS

CN Benzoic acid, 3-borono-5-nitro- (6CI, 9CI) (CA INDEX NAME)



IT 66472-86-4, m-Aminophenylboronic acid (hemisulfate)  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(determination of glycosylated Hb by one-read method using boronate affinity  
capture and labeled anti-Hb antibody)

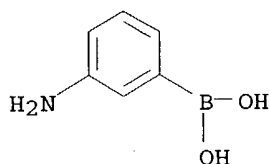
RN 66472-86-4 HCAPLUS

CN Boronic acid, (3-aminophenyl)-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 30418-59-8

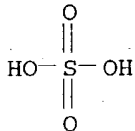
CMF C6 H8 B N O2



CM 2

CRN 7664-93-9

CMF H2 O4 S



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 12 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 2001:382816 HCAPLUS  
DOCUMENT NUMBER: 135:88932  
TITLE: Application of an enhanced luminol  
**chemiluminescence** reaction using  
4-[4,5-di(2-pyridyl)-1H-imidazol-2-yl]phenylboronic  
acid to photographic detection of horseradish  
peroxidase on a membrane  
AUTHOR(S): Kuroda, Naotaka; Murasaki, Naoko; Wada, Mitsuhiro;  
Nakashima, Kenichiro  
CORPORATE SOURCE: School of Pharmaceutical Sciences, Nagasaki  
University, Nagasaki, 852-8521, Japan  
SOURCE: Luminescence (2001), 16(2), 167-172  
CODEN: LUMIFC; ISSN: 1522-7235  
PUBLISHER: John Wiley & Sons Ltd.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Photog. detection of horseradish peroxidase (HRP) on a membrane by the

luminol-H<sub>2</sub>O<sub>2</sub>-HRP **chemiluminescence** reaction using 4-[4,5-di(2-pyridyl)-1H-imidazol-2-yl]phenylboronic acid (DPPA) as an enhancer is described. The method is based on the long-lived **chemiluminescence** emission obtained by using DPPA. Under the optimum conditions, as little as 0.10 ng (.apprx.2.3 fmol) and 0.20 ng (.apprx.4.6 fmol) per spot of HRP on a membrane were detected as visible spots with exposure times of 60 and 10 min, resp., by using an instant photog. film and a camera luminometer. The proposed method was highly sensitive and was successfully applied to the detection of HRP conjugates as an alternative to the colorimetric method using a chromogenic substrate in a com. available assay kit of Western blotting.

CC 7-1 (Enzymes)

ST peroxidase detn membrane **chemiluminescence** photog detection

IT **Chemiluminescence spectroscopy**  
 (application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

IT Membranes, nonbiological  
 (nitrocellulose; application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

IT 9003-99-0D, Peroxidase, horseradish, conjugates  
 RL: ANT (Analyte); ANST (Analytical study)  
 (application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

IT 521-31-3, Luminol 7722-84-1, Hydrogen peroxide, uses  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

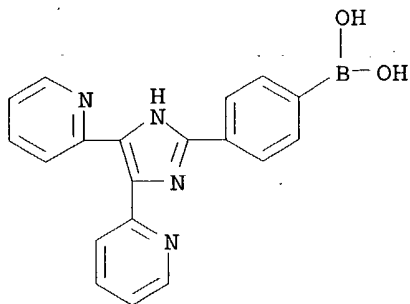
IT 264889-15-8  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

IT 9003-99-0, Peroxidase  
 RL: ANT (Analyte); ANST (Analytical study)  
 (horseradish; application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

IT 264889-15-8  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (application of enhanced luminol **chemiluminescence** reaction using a phenylboronic acid derivative to photog. detection of horseradish peroxidase and its conjugates on a membrane)

RN 264889-15-8 HCAPLUS

CN Boronic acid, [4-(4,5-di-2-pyridinyl-1H-imidazol-2-yl)phenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 13 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:208515 HCAPLUS

DOCUMENT NUMBER: 134:234022

TITLE: Determination of % glycated hemoglobin using immobilized boronate and labeled antibody

INVENTOR(S): Lee, Evelyn Mok; Westerberg, David A.; Yao, Haiou H.; Adamczyk, Janina; Christensen, Melissa A.

PATENT ASSIGNEE(S): Abbott Laboratories, USA

SOURCE: PCT Int. Appl., 38 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

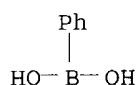
FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

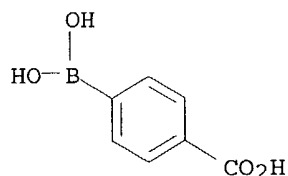
| PATENT NO.                                                                    | KIND | DATE     | APPLICATION NO. | DATE        |
|-------------------------------------------------------------------------------|------|----------|-----------------|-------------|
| WO 2001020338                                                                 | A1   | 20010322 | WO 2000-US24159 | 20000905    |
| W: CA, JP                                                                     |      |          |                 |             |
| RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE    |      |          |                 |             |
| US 6316265                                                                    | B1   | 20011113 | US 1999-399219  | 19990917    |
| EP 1212623                                                                    | A1   | 20020612 | EP 2000-964939  | 20000905    |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY |      |          |                 |             |
| JP 2003509693                                                                 | T2   | 20030311 | JP 2001-523873  | 20000905    |
| PRIORITY APPLN. INFO.:                                                        |      |          | US 1999-399219  | A 19990917  |
|                                                                               |      |          | US 1997-816237  | A2 19970313 |
|                                                                               |      |          | WO 2000-US24159 | W 20000905  |

AB A glycated Hb (GHb) assay utilizes a simple procedure for the determination of diabetes control and complications trial (DCCT) standardized %GHb in whole blood samples. First, a lysed whole blood sample is incubated with a solid phase that is coupled with boronic acid or similar boronate compound through covalent linkage chemistries known in the art. Next, a labeled antibody to human Hb is added and the resulting signal is directly proportional to the %GHb in the sample. The advantages of measuring %GHb using a single determination include high precision and, since the assay is easily automatable, high throughput. With automation, this assay can also be consolidated with other testing on one analyzer. The method according to the various embodiments of the invention thus eliminates the need for two measurements: one for GHb and another for total Hb (THb).

IC ICM G01N033-72  
ICS G01N033-543  
CC 9-10 (Biochemical Methods)  
IT **Chemiluminescent substances**  
Fluorescent substances  
Radioactive substances  
(as labels; determination of % glycated Hb using immobilized boronate and labeled antibody)  
IT **Immunoassay**  
(chemiluminescence; determination of % glycated Hb using immobilized boronate and labeled antibody)  
IT **98-80-6D**, Phenylboronic acid, immobilized 10043-35-3D, Boric acid, immobilized 13780-71-7D, Boronic acid, immobilized **14047-29-1D**, 4-Carboxyphenylboronic acid, immobilized **30418-59-8D**, m-Aminophenylboronic acid, immobilized **101084-81-5D**, immobilized  
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)  
(determination of % glycated Hb using immobilized boronate and labeled antibody)  
IT 107-15-3, Ethylenediamine, reactions 4097-89-6, Tris(2-aminoethyl)amine **66472-86-4**, m-Aminophenylboronic acid hemisulfate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(determination of % glycated Hb using immobilized boronate and labeled antibody)  
IT **98-80-6D**, Phenylboronic acid, immobilized **14047-29-1D**, 4-Carboxyphenylboronic acid, immobilized **30418-59-8D**, m-Aminophenylboronic acid, immobilized **101084-81-5D**, immobilized  
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)  
(determination of % glycated Hb using immobilized boronate and labeled antibody)  
RN 98-80-6 HCAPLUS  
CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



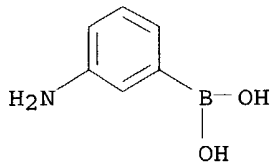
RN 14047-29-1 HCAPLUS  
CN Benzoic acid, 4-borono- (9CI) (CA INDEX NAME)



RN 30418-59-8 HCAPLUS

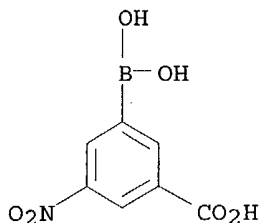


CN Boronic acid, (3-aminophenyl)- (9CI) (CA INDEX NAME)



RN 101084-81-5 HCAPLUS

CN Benzoic acid, 3-borono-5-nitro- (6CI, 9CI) (CA INDEX NAME)



IT 66472-86-4, m-Aminophenylboronic acid hemisulfate

RL: RCT (Reactant); RACT (Reactant or reagent)

(determination of % glycated Hb using immobilized boronate and labeled antibody)

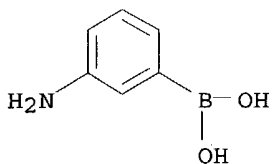
RN 66472-86-4 HCAPLUS

CN Boronic acid, (3-aminophenyl)-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 30418-59-8

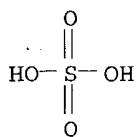
CMF C6 H8 B N O2



CM 2

CRN 7664-93-9

CMF H2 O4 S



REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 14 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:169756 HCAPLUS

DOCUMENT NUMBER: 134:353639

TITLE: Polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole] for light-emitting diodes

AUTHOR(S): Wang, Changsheng; Kilitziraki, Mary; Palsson, Lars-Olof; Bryce, Martin R.; Monkman, Andrew P.; Samuel, Ifor D. W.

CORPORATE SOURCE: Department of Chemistry, University of Durham, Durham, DH1 3LE, UK

SOURCE: Advanced Functional Materials (2001), 11(1), 47-50

CODEN: AFMDC6; ISSN: 1616-301X

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polymeric alkoxy [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole] derivs. (I & II) were prepared using Suzuki coupling reactions of 1,4-dialkoxybenzene-2,5-diboronic acid with 2,5-bis(4-bromophenyl)-1,3,5-oxadiazole, and its dipyrindyl analog, resp. Thermal gravimetric anal. shows that the polymers are stable up to 370° and 334°, resp. Films of polymer I spun from chloroform solution show an absorption at  $\lambda_{\text{max}} = 367$  nm, and a weaker band at 312 nm, and strong blue photoluminescence at  $\lambda_{\text{max}} = 444$  nm. The photoluminescence quantum yield (PLQY) was found to be  $27 \pm 3\%$ . For polymer II, the absorption spectra reveal bands of equal intensity at  $\lambda_{\text{max}} = 374$  and 312 nm, with PL at  $\lambda_{\text{max}} = 475$  nm. Device studies using polymer II were hampered by its instability under illumination and/or elec. excitation. Polymer I is stable under these conditions and acts as an efficient electron-transporting/hole-blocking layer. For devices of configuration ITO/PEDOT/MEH-PPV/polymer I/Al an external quantum efficiency of 0.26% and brightness of 800 cd/m<sup>2</sup> was readily achieved: orange emission was observed, identical to the MEH-PPV electroluminescence.

CC 35-7 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 73

IT **Luminescence, chemiluminescence**

Luminescence, electroluminescence

(in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

IT 106-51-4, 2,5-Cyclohexadiene-1,4-dione, reactions 115-19-5,  
2-Methyl-3-butyn-2-ol 586-75-4, 4-Bromobenzoyl chloride 624-28-2,  
2,5-Dibromopyridine 5933-32-4, p-Bromobenzoic hydrazide 10035-10-6,  
Hydrobromic acid, reactions 14753-51-6, 2,5-Dibromohydroquinone  
19542-05-3 69673-99-0 123324-71-0, 4-tert-Butylphenylboronic  
acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

IT 30766-11-1P, 5-Bromopyridine, 2-carboxylic acid 134321-95-2P

191867-85-3P 191917-63-2P 339064-91-4P 339064-93-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

IT 339064-96-9P 339065-01-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(photoluminescence; in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

IT 339064-88-9P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(photoluminescence; preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole] for light-emitting diodes)

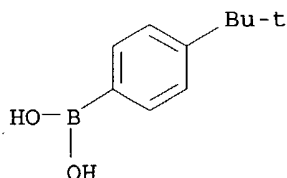
IT 123324-71-0, 4-tert-Butylphenylboronic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

RN 123324-71-0 HCAPLUS

CN Boronic acid, [4-(1,1-dimethylethyl)phenyl]- (9CI) (CA INDEX NAME)



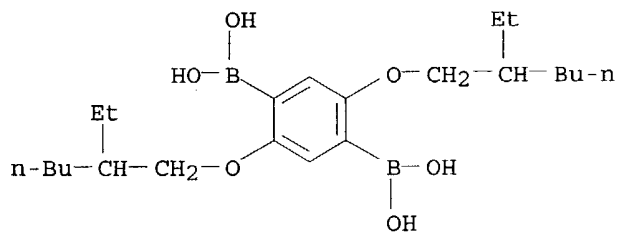
IT 191917-63-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

RN 191917-63-2 HCAPLUS

CN Boronic acid, [2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]bis- (9CI) (CA INDEX NAME)



IT 339064-96-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (photoluminescence; in preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole])

RN 339064-96-9 HCAPLUS

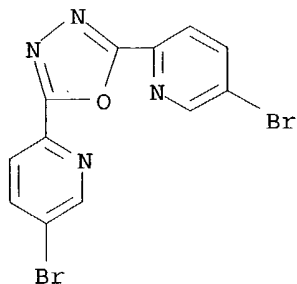
CN Boronic acid, [2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]bis-, polymer with

2,2'-(1,3,4-oxadiazole-2,5-diyl)bis[5-bromopyridine] (9CI) (CA INDEX NAME)

CM 1

CRN 339064-93-6

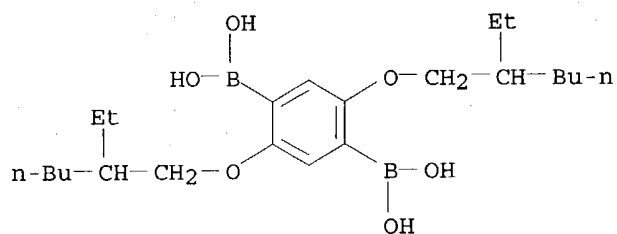
CMF C12 H6 Br2 N4 O



CM 2

CRN 191917-63-2

CMF C22 H40 B2 O6



IT 339064-88-9P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(photoluminescence; preparation of polymeric alkoxy PBD [2-(4-biphenyl)-5-phenyl-1,3,4-oxadiazole] for light-emitting diodes)

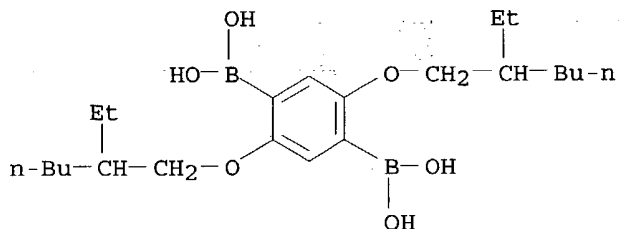
RN 339064-88-9 HCAPLUS

CN Boronic acid, [2,5-bis[(2-ethylhexyl)oxy]-1,4-phenylene]bis-, polymer with 2,5-bis(4-bromophenyl)-1,3,4-oxadiazole (9CI) (CA INDEX NAME)

CM 1

CRN 191917-63-2

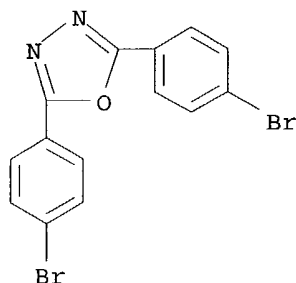
CMF C22 H40 B2 O6



CM 2

CRN 19542-05-3

CMF C14 H8 Br2 N2 O



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 15 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:58741 HCAPLUS

DOCUMENT NUMBER: 134:262751

TITLE: Design, Synthesis, and Evaluation of the Transition-State Inhibitors of Coelenterazine  
**Bioluminescence:** Probing the Chiral Environment of Active Site

AUTHOR(S): Nakamura, Hideshi; Wu, Chun; Inouye, Satoshi; Murai, Akio

CORPORATE SOURCE: Division of Biomodeling Department of Applied Molecular Biosciences Graduate School of Bioagricultural Sciences, Nagoya University, Nagoya, 464-8601, Japan

SOURCE: Journal of the American Chemical Society (2001), 123(7), 1523-1524

CODEN: JACSAT; ISSN: 0002-7863

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

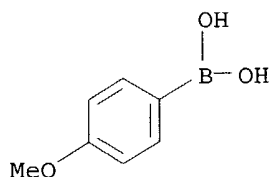
LANGUAGE: English

OTHER SOURCE(S): CASREACT 134:262751

AB The authors have established a novel and effective route to synthesize stable, chiral analogs of coelenterazine for studying transition states and unstable intermediates involved in the **bioluminescence** of coelenterazine. Among the analogs studied, the hydroxymethyl model of the hydroperoxide structure, (R)-TS-2, showed the most potent inhibition of

recombinant Renilla luciferase. Efforts to elucidate the key structure required for efficient luminescence and the identification of catalytic site are in progress.

- CC 7-4 (Enzymes)  
Section cross-reference(s): 26
- ST luciferase transition state inhibitor prepn coelenterazine  
**bioluminescence**
- IT **Luminescence, bioluminescence**  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 331816-24-1P 331816-25-2P 331816-35-4P 331816-36-5P 331816-37-6P  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 61869-41-8, Luciferase  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 55779-48-1, Coelenterazine  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 331816-26-3P  
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 5892-99-9  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 331816-27-4P 331816-28-5P 331816-29-6P 331816-30-9P 331816-31-0P  
331816-32-1P 331816-33-2P 331816-34-3P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(design, synthesis, and evaluation of luciferase transition-state inhibitors of coelenterazine **bioluminescence**)
- IT 5720-07-0, 4-Methoxyphenylboronic acid 15097-38-8, Benzyl (triphenylphosphoranylidene)acetate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of)
- IT 5720-07-0, 4-Methoxyphenylboronic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of)
- RN 5720-07-0 HCAPLUS
- CN Boronic acid, (4-methoxyphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 16 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:248612 HCAPLUS

DOCUMENT NUMBER: 133:17320

TITLE: Convergent and short-step syntheses of dl-Cypridina  
luciferin and its analogs based on Pd-mediated cross  
couplings

AUTHOR(S): Nakamura, Hideshi; Aizawa, Mihoko; Takeuchi, Daisuke;  
Murai, Akio; Shimoura, Osamu

CORPORATE SOURCE: Division of Biomodeling, Department of Applied  
Molecular Biosciences, Graduate School of  
Bioagricultural Sciences, Nagoya University, Nagoya,  
464-8601, Japan

SOURCE: Tetrahedron Letters (2000), 41(13), 2185-2188

CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:17320

AB (+)-Cypridina luciferin and its analogs I (X = NH, O, S) were  
synthesized from 2-aminopyrazine by an eight-step method that included two  
regio-selective Pd-mediated cross couplings, and their chemi- and  
**bioluminescent** activities were compared. Analogs having a  
3-benzofuranyl or a 3-benzothienyl group in the place of a 3-indolyl group  
showed luciferase affinities similar to Cypridina luciferase but with a  
lower luminescent efficiency, suggesting that the NH group is unimportant  
for mol. recognition whereas the indolyl group is crucial for efficient  
luminescence.

CC 26-9 (Biomolecules and Their Synthetic Analogs)

Section cross-reference(s): 7

ST Cypridina luciferin oxa thia analog prepn; Suzuki coupling palladium  
mediated aminobromopyrazine indole; **chemiluminescence** Cypridina  
luciferin oxa thia analog; **bioluminescence** Cypridina luciferin  
oxa thia analog

IT Heterocyclization

**Luminescence, bioluminescence**

**Luminescence, chemiluminescence**

(preparation of (+)-Cypridina luciferin and its oxa and thia analogs via  
Pd-mediated cross couplings)

IT 24241-18-7 92136-39-5 142913-28-8 **149108-61-2** 271260-62-9  
271260-63-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of (+)-Cypridina luciferin and its oxa and thia analogs via  
Pd-mediated cross couplings)

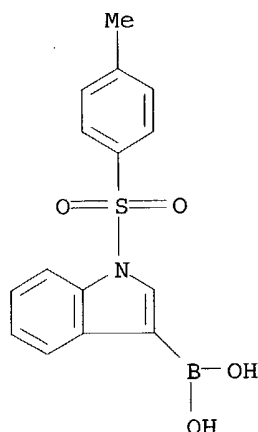
IT **149108-61-2**

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of (+)-Cypridina luciferin and its oxa and thia analogs via  
Pd-mediated cross couplings)

RN 149108-61-2 HCAPLUS

CN Boronic acid, [1-[(4-methylphenyl)sulfonyl]-1H-indol-3-yl]- (9CI) (CA  
INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 17 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:87182 HCAPLUS

DOCUMENT NUMBER: 132:290260

TITLE: New phenylboronic acid derivatives as enhancers of the luminol-H<sub>2</sub>O<sub>2</sub>-horseradish peroxidase **chemiluminescence** reaction

AUTHOR(S): Kuroda, Naotaka; Kawazoe, Kaori; Nakano, Hirofumi; Wada, Mitsuhiro; Nakashima, Kenichiro

CORPORATE SOURCE: School of Pharmaceutical Sciences, Nagasaki University, Nagasaki, 852-8521, Japan

SOURCE: Luminescence (1999), 14(6), 361-364

CODEN: LUMIFC; ISSN: 1522-7235

PUBLISHER: John Wiley & Sons Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The preparation of three new types of phenylboronic acid derivs. and their evaluation as enhancers on the luminol-H<sub>2</sub>O<sub>2</sub>-horseradish peroxidase (HRP) **chemiluminescence** (CL) reaction are described. After optimizing the CL reaction conditions, the CL system was applied to the HRP determination. Among the three phenylboronic acid derivs., i.e. 4-(4,5-diphenyl-1H-imidazol-2-yl)phenylboronic acid (DPA), 4-[4(or 5)-(4-dimethylaminophenyl)-5(or 4)-phenyl-1H-imidazol-2-yl]phenylboronic acid (DAPA) and 4-[4,5-di(2-pyridyl)-1H-imidazol-2-yl]phenylboronic acid (DPPA), DPPA was found to be the most potent enhancer. The sensitivity obtained with DPPA was about 180 times higher than that without an enhancer. The detection limit of HRP obtained with DPPA was 0.15 ng/assay (ca. 3.5 fmol), which is comparable to that with 4-iodophenol under the conditions examined. All the phenylboronic acid derivs. examined had the effect of prolonging light emission compared to 4-iodophenol.

CC 7-1 (Enzymes)

ST peroxidase detn **chemiluminescence** enhancement phenylboronate deriv

IT **Luminescence, chemiluminescence**  
(new phenylboronic acid derivs. as enhancers of the luminol-H<sub>2</sub>O<sub>2</sub>-horseradish peroxidase **chemiluminescence** reaction)

IT 9003-99-0, Peroxidase



RL: ANT (Analyte); ANST (Analytical study)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

IT 521-31-3, Luminol  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

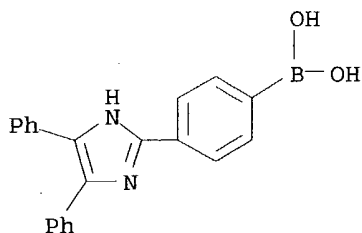
IT 264889-14-7P 264889-15-8P 264889-16-9P  
 RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

IT 7722-84-1, Hydrogen peroxide, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL  
 (Biological study); PROC (Process)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

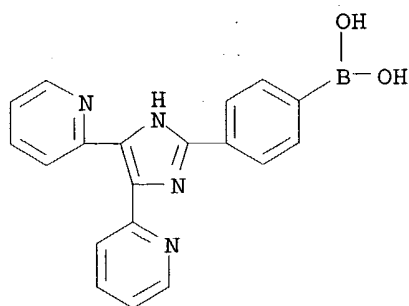
IT 134-81-6, Benzil 492-73-9, 2,2'-Pyridil 22711-20-2,  
 4-Dimethylaminobenzil 87199-17-5, 4-Formylphenylboronic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

IT 264889-14-7P 264889-15-8P 264889-16-9P  
 RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation)  
 (new phenylboronic acid derivs. as enhancers of the  
 luminol-H2O2-horseradish peroxidase **chemiluminescence**  
 reaction)

RN 264889-14-7 HCAPLUS  
 CN Boronic acid, [4-(4,5-diphenyl-1H-imidazol-2-yl)phenyl]- (9CI) (CA INDEX  
 NAME)

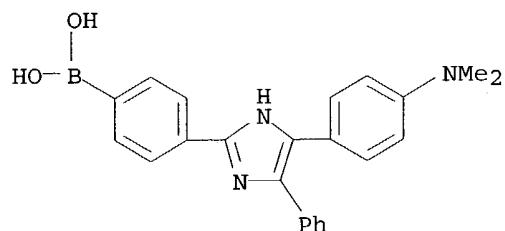


RN 264889-15-8 HCAPLUS  
 CN Boronic acid, [4-(4,5-di-2-pyridinyl-1H-imidazol-2-yl)phenyl]- (9CI) (CA  
 INDEX NAME)



RN 264889-16-9 HCAPLUS

CN Boronic acid, [4-[4-[4-(dimethylamino)phenyl]-5-phenyl-1H-imidazol-2-yl]phenyl]- (9CI) (CA INDEX NAME)



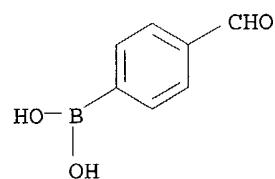
IT 87199-17-5, 4-Formylphenylboronic acid

RL: RCT (Reactant); RACT (Reactant or reagent)

(new phenylboronic acid derivs. as enhancers of the luminol-H2O2-horseradish peroxidase **chemiluminescence** reaction)

RN 87199-17-5 HCAPLUS

CN Boronic acid, (4-formylphenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 18 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1998:795186 HCAPLUS  
 DOCUMENT NUMBER: 130:35358  
 TITLE: **Chemiluminescent** hemoglobin assay  
 INVENTOR(S): Hixson, Craig S.  
 PATENT ASSIGNEE(S): Bio-Rad Laboratories, Inc., USA  
 SOURCE: PCT Int. Appl., 17 pp.  
 CODEN: PIXXD2

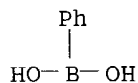
DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | KIND                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | DATE     | APPLICATION NO. | DATE     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|----------|
| WO 9854578                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 19981203 | WO 1998-US9867  | 19980514 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG,<br>KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,<br>NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,<br>UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SZ, UG, AT, BE, CH, CY, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,<br>CM, GA, GN, ML, MR, NE, SN, TD, TG |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                 |          |
| AU 9874877                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | A1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 19981230 | AU 1998-74877   | 19980514 |
| PRIORITY APPLN. INFO.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          | US 1997-865367  | 19970529 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          | WO 1998-US9867  | 19980514 |
| AB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | The Hb content of a sample is determined by <b>chemiluminescence</b> , based on the ability of Hb to absorb radiation emitted by a <b>chemiluminescent</b> reaction. To perform the assay, the sample is placed in a liquid medium with a compound that is susceptible to a <b>chemiluminescent</b> reaction, and the medium is exposed to conditions causing the <b>chemiluminescent</b> reaction to occur. The amount of emission created by the reaction and not absorbed by the Hb is then detected and compared to calibrators or stds. as a measure of the amount of Hb present. By combining the above with procedures that sep. and quantify glycosylated Hb, the assay can be used to determine glycosylated Hb as a proportion of the total. |          |                 |          |
| IC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ICM G01N033-72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                 |          |
| CC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ICS G01N033-543; G01N033-551                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |                 |          |
| ST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9-5 (Biochemical Methods)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>chemiluminescent</b> Hb assay                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Onium compounds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (acridinium; <b>chemiluminescent</b> Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Chemiluminescence spectroscopy</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Particles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (chemiluminescent Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hemoglobins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ANT (Analyte); ANST (Analytical study)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (chemiluminescent Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Alkali metal hydroxides                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (chemiluminescent Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Hemoglobins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ANT (Analyte); ANST (Analytical study)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (glycohemoglobins; <b>chemiluminescent</b> Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Particles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (paramagnetic; <b>chemiluminescent</b> Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>98-80-6</b> , Phenylboronic acid 144-62-7D, Ethanedioic acid, compds., uses 7697-37-2, Nitric acid, uses 7722-84-1, Hydrogen peroxide (H2O2), uses 13780-71-7D, Boronic acid, alkane 14915-07-2, Peroxide 113630-26-5 216774-74-2D, compds.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | (chemiluminescent Hb assay)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>98-80-6</b> , Phenylboronic acid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                 |          |
| IT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                 |          |

(chemiluminescent Hb assay)

RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 19 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:621381 HCAPLUS

DOCUMENT NUMBER: 129:242239

TITLE: Determination of % glycated hemoglobin

INVENTOR(S): Lee, Evelyn Mok; Westerberg, David A.; Yao, Haiou H.; Adamczyk, Janina; Christensen, Melissa A.

PATENT ASSIGNEE(S): Abbott Laboratories, USA

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

| PATENT NO.                                                             | KIND | DATE     | APPLICATION NO. | DATE       |
|------------------------------------------------------------------------|------|----------|-----------------|------------|
| WO 9840750                                                             | A1   | 19980917 | WO 1998-US5005  | 19980313   |
| W: CA, JP                                                              |      |          |                 |            |
| RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |            |
| US 6162645                                                             | A    | 20001219 | US 1997-816237  | 19970313   |
| EP 974060                                                              | A1   | 20000126 | EP 1998-910389  | 19980313   |
| EP 974060                                                              | B1   | 20030903 |                 |            |
| R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL                              |      |          |                 |            |
| JP 2000514196                                                          | T2   | 20001024 | JP 1998-539868  | 19980313   |
| JP 3356785                                                             | B2   | 20021216 |                 |            |
| AT 249049                                                              | E    | 20030915 | AT 1998-910389  | 19980313   |
| ES 2206900                                                             | T3   | 20040516 | ES 1998-910389  | 19980313   |
| PRIORITY APPLN. INFO.:                                                 |      |          | US 1997-816237  | A 19970313 |
|                                                                        |      |          | WO 1998-US5005  | W 19980313 |

AB A glycated Hb assay utilizes a simple procedure for the determination of DCCT Standardized %GHb in whole blood samples. First, a lysed whole blood sample is incubated with a solid phase that is coupled with boronic acid or similar boronate compound through covalent linkage chemistries known in the art. Next, a labeled antibody to human Hb is added and the resulting signal is directly proportional to the %GHb in the sample. The advantages of measuring %GHb using a single determination include high precision and, since

the assay is easily automatable, high throughput. With automation, this assay can also be consolidated with other testing on one analyzer. The method according to the various embodiments of the invention thus eliminates the need for two measurements: one for GHb and another for total Hb (THb).

IC ICM G01N033-72

ICS G01N033-543

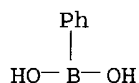
CC 9-16 (Biochemical Methods)

IT Blood analysis  
**Chemiluminescent substances**  
 Fluorescent substances  
 Isotope indicators  
 Microparticles  
 Microtiter plates  
 Pipes and Tubes  
 (determination of percentage glycated Hb)

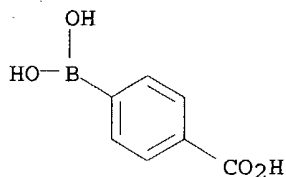
IT 98-80-6, Phenylboronic acid 13780-71-7, Boronic acid  
 13780-71-7D, Boronic acid, compds. 14047-29-1,  
 4-Carboxyphenylboronic acid 30418-59-8, m-Aminophenylboronic  
 acid 101084-81-5  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (determination of percentage glycated Hb)

IT 98-80-6, Phenylboronic acid 14047-29-1,  
 4-Carboxyphenylboronic acid 30418-59-8, m-Aminophenylboronic  
 acid 101084-81-5  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (determination of percentage glycated Hb)

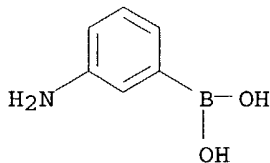
RN 98-80-6 HCAPLUS  
 CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



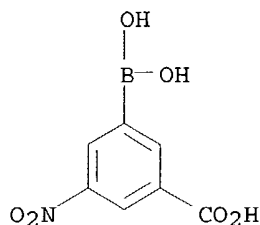
RN 14047-29-1 HCAPLUS  
 CN Benzoic acid, 4-borono- (9CI) (CA INDEX NAME)



RN 30418-59-8 HCAPLUS  
 CN Boronic acid, (3-aminophenyl)- (9CI) (CA INDEX NAME)



RN 101084-81-5 HCAPLUS  
 CN Benzoic acid, 3-borono-5-nitro- (6CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 20 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:482779 HCAPLUS

DOCUMENT NUMBER: 129:227130

TITLE: **Bioluminescent** properties of fluorinated semi-synthetic aequorins

AUTHOR(S): Hirano, Takashi; Ohmiya, Yoshihiro; Maki, Shojiro; Niwa, Haruki; Ohashi, Mamoru

CORPORATE SOURCE: Department of Applied Physics and Chemistry, The University of Electro-Communications, Tokyo, 182, Japan

SOURCE: Tetrahedron Letters (1998), 39(31), 5541-5544  
CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB **Bioluminescent** properties of semi-synthetic aequorins containing coelenterazine analogs I (X, Y = H, F) possessing fluoro group(s) on the 6-(4-hydroxyphenyl) group match the fluorescent behavior of the phenolate anions of the corresponding fluorinated coelenteramide analogs II. This indicates that the phenolate anion of coelenteramide is the light-emitter in aequorin **bioluminescence**.

CC 6-3 (General Biochemistry)  
Section cross-reference(s): 28

ST coelenterazine contg aequorin prepn **bioluminescence** spectra;  
coelenteramide contg aequorin prepn **bioluminescence** spectra;  
fluorescence **chemiluminescence** spectra coelenterazine deriv;  
**chemiluminescence** fluorescence spectra coelenteramide deriv

IT Aequorins

RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)  
(apoequorins, coelenterazine- or coelenteramide-conjugates; preparation and **bioluminescent** properties of fluorinated semi-synthetic aequorins)

IT Chromophores

(fluorinated; preparation and **bioluminescent** properties of fluorinated semi-synthetic aequorins)

IT Fluorescence

**Luminescence, bioluminescence**

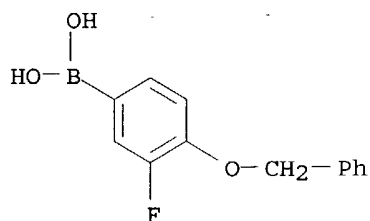
**Luminescence, chemiluminescence**

(preparation and **bioluminescent** properties of fluorinated semi-synthetic aequorins)

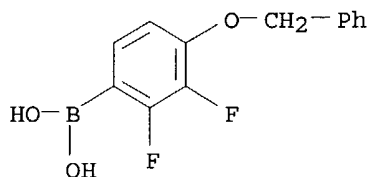
IT Aequorins

RL: BPR (Biological process); BSU (Biological study, unclassified); PRP

- (Properties); BIOL (Biological study); PROC (Process)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- IT 212842-91-6P 212842-92-7P  
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP  
(Properties); RCT (Reactant); SPN (Synthetic preparation); BIOL  
(Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or  
reagent)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- IT 50611-86-4P 55779-48-1P 212842-91-6DP, apoaquorin conjugates  
212842-92-7DP, apoaquorin conjugates 212842-94-9P 212842-96-1P  
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP  
(Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP  
(Preparation); PROC (Process)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- IT 62790-85-6 133057-83-7 156635-87-9 174680-55-8  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- IT 165330-28-9P 212842-97-2P 212842-99-4P 212843-00-0P 212843-01-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- IT 133057-83-7 156635-87-9  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and **bioluminescent** properties of fluorinated  
semi-synthetic aequorins)
- RN 133057-83-7 HCAPLUS  
CN Boronic acid, [3-fluoro-4-(phenylmethoxy)phenyl]- (9CI) (CA INDEX NAME)



- RN 156635-87-9 HCAPLUS  
CN Boronic acid, [2,3-difluoro-4-(phenylmethoxy)phenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 21 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1997:766280 HCAPLUS  
DOCUMENT NUMBER: 128:99225  
TITLE: Structure-activity relationships of boronic acids  
AUTHOR(S): Ji, X.; Kricka, L. J.  
CORPORATE SOURCE: Dep. Pathology & Lab. Medicine, Univ. Pennsylvania  
Medical Center, Philadelphia, PA, 19104, USA  
SOURCE: Bioluminescence and Chemiluminescence: Molecular  
Reporting with Photons, Proceedings of the  
International Symposium on Bioluminescence and  
Chemiluminescence, 9th, Woods Hole, Mass., Oct. 4-8,  
1996 (1997), Meeting Date 1996, 477-480. Editor(s):  
Hastings, J. W.; Kricka, L. J.; Stanley, P. E. Wiley:  
Chichester, UK.  
CODEN: 65JYAO  
DOCUMENT TYPE: Conference  
LANGUAGE: English

AB The **chemiluminescent** horseradish peroxidase-catalyzed oxidation of luminol is enhanced by firefly luciferin, 4-substituted phenols, substituted naphthols, aromatic amines, phenylboronic acids, and a series of aromatic mols. Aryl boronic acids represent one of the latest classes of compds. that are effective as enhancers. In a effort to understand the relationship between enhancement activity and structure, an extensive screening study of a range of mono-, di-, and poly-substituted boronic acid derivs. was undertaken. The parent compound, phenylboronic acid, had no significant effect on blank or signal, in contrast to the various substituted phenylboronic acids that acted as enhancers. The majority of the 4-substituted phenylboronic acids were effective enhancers of light emission (except 4-methoxy and 4-phenoxy), but in contrast, none of the 2- or 3-substituted derivs. tested enhanced light emission.

CC 7-3 (Enzymes)

ST peroxidase **chemiluminescence** enhancement boronate structure activity

IT Structure-activity relationship  
(peroxidase **chemiluminescence**-enhancing; structure-activity relationships of peroxidase **chemiluminescence** enhancement by boronic acids)

IT **Luminescence, chemiluminescence**  
(structure-activity relationships of peroxidase **chemiluminescence** enhancement by boronic acids)

IT 98-80-6, Phenylboronic acid 1679-18-1,  
4-Chlorophenylboronic acid 3900-89-8, 2-Chlorophenylboronic acid 4151-80-8, 4,4'-Bis(phenylboronic acid) 4406-77-3,  
2-Phenyl-1,3,2-dioxaborinane 4426-47-5, 1-Butaneboronic acid 4612-26-4, 1,4-Phenyldiboronic acid 4688-76-0,  
2-Biphenylboronic acid 5122-94-1, 4-Biphenylboronic acid 5122-99-6, 4-Iodophenylboronic acid 5467-74-3,  
4-Bromophenylboronic acid 5720-05-8, 4-Methylphenylboronic acid 5720-07-0, 4-Methoxybenzeneboronic acid 13331-27-6,  
3-Nitrophenylboronic acid 13922-41-3, 1-Naphthaleneboronic acid 16419-60-6, 2-Tolueneboronic acid 17865-11-1,  
4-(Trimethylsilyl)benzeneboronic acid 23147-97-9,  
Diphenylisobutoxyborane 30418-59-8, 3-Aminophenylboronic acid 51067-38-0 63185-97-7 63503-60-6, 3-Chlorophenylboronic acid 67492-50-6, 3,5-Dichlorophenylboronic acid 68716-47-2, 2,4-Dichlorophenylboronic acid



73852-18-3, 2,4,6-Trichlorophenylboronic acid 80500-28-3  
 , 4-Carboxy-3-nitrophenylboronic acid 89694-45-1,  
 5-Bromo-2-methoxybenzeneboronic acid 93361-16-1 96983-22-1,  
 4-Bromophenyl-di-n-butoxyborane 100124-06-9,  
 4-Dibenzofuranboronic acid 105169-33-3 108847-76-3,  
 1-Thianthreneboronic acid 135145-90-3, 2,5-Dichlorophenylboronic  
 acid 151169-66-3 151169-67-4, 4-Chloro-3-  
 nitrophenylboronic acid 151169-69-6, 4-(4'-Bromodiphenyl)di-n-  
 butoxyborane 151169-70-9, 4-Chlorophenyl-di-(4-chlorophenoxy)borane  
 151169-71-0, N-(4-Chlorophenyl)-4-aminophenyl-boronic acid  
 151169-74-3, 2,3-Dichlorophenylboronic acid 151169-76-5,  
 Di-(3,5-dichlorophenoxy)-3,5-dichlorophenylborane 151196-37-1,  
 3-Amino-2,4,6-trichlorophenylboronic acid 159896-15-8,  
 trans-4-(3-Propenoic acid)phenylboronic acid 162125-08-8,  
 3,4-Dichlorophenylboronic acid 173194-95-1, 6-Hydroxy-2-  
 naphthaleneboronic acid 178320-31-5 201346-84-1,  
 2-(Methylthiomethyl)phenylboronic acid 201346-86-3,  
 3-Chloroacetylaminophenylboronic acid 201346-87-4 201347-10-6,  
 Di-(3,4,6-trichlorophenoxy)-3,4,6-trichlorophenylborane 201347-12-8,  
 Di-(1-naphthoxy)-1-naphthylborane 201347-14-0, 2-Bromomethylphenyl-di-(2-  
 bromomethylphenoxy)borane 201347-17-3 201347-20-8  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological  
 study, unclassified); PRP (Properties); BIOL (Biological study)  
 (structure-activity relationships of peroxidase  
**chemiluminescence** enhancement by boronic acids)  
 IT 521-31-3, Luminol 7722-84-1, Hydrogen peroxide (H2O2), biological  
 studies 9003-99-0, Peroxidase  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL  
 (Biological study); PROC (Process)  
 (structure-activity relationships of peroxidase  
**chemiluminescence** enhancement by boronic acids)  
 IT 98-80-6, Phenylboronic acid 1679-18-1,  
 4-Chlorophenylboronic acid 3900-89-8, 2-Chlorophenylboronic acid  
 4151-80-8, 4,4'-Bis(phenylboronic acid) 4406-77-3,  
 2-Phenyl-1,3,2-dioxaborinane 4612-26-4, 1,4-Phenyldiboronic acid  
 4688-76-0, 2-Biphenylboronic acid 5122-94-1,  
 4-Biphenylboronic acid 5122-99-6, 4-Iodophenylboronic acid  
 5467-74-3, 4-Bromophenylboronic acid 5720-05-8,  
 4-Methylphenylboronic acid 5720-07-0, 4-Methoxybenzeneboronic  
 acid 13331-27-6, 3-Nitrophenylboronic acid 13922-41-3,  
 1-Naphthaleneboronic acid 16419-60-6, 2-Tolueneboronic acid  
 17865-11-1, 4-(Trimethylsilyl)benzeneboronic acid  
 30418-59-8, 3-Aminophenylboronic acid 51067-38-0  
 63503-60-6, 3-Chlorophenylboronic acid 67492-50-6,  
 3,5-Dichlorophenylboronic acid 68716-47-2, 2,4-  
 Dichlorophenylboronic acid 73852-18-3, 2,4,6-  
 Trichlorophenylboronic acid 80500-28-3, 4-Carboxy-3-  
 nitrophenylboronic acid 89694-45-1, 5-Bromo-2-  
 methoxybenzeneboronic acid 96983-22-1, 4-Bromophenyl-di-n-  
 butoxyborane 100124-06-9, 4-Dibenzofuranboronic acid  
 108847-76-3, 1-Thianthreneboronic acid 135145-90-3,  
 2,5-Dichlorophenylboronic acid 151169-66-3 151169-67-4  
 , 4-Chloro-3-nitrophenylboronic acid 151169-69-6,  
 4-(4'-Bromodiphenyl)di-n-butoxyborane 151169-71-0,  
 N-(4-Chlorophenyl)-4-aminophenyl-boronic acid 151169-74-3,  
 2,3-Dichlorophenylboronic acid 151196-37-1, 3-Amino-2,4,6-  
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 acid)phenylboronic acid 173194-95-1, 6-Hydroxy-2-  
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2-(Methylthiomethyl)phenylboronic acid 201346-86-3,

3-Chloroacetylaminophenylboronic acid 201346-87-4

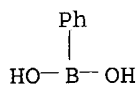
201347-17-3 201347-20-8

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(structure-activity relationships of peroxidase  
**chemiluminescence** enhancement by boronic acids)

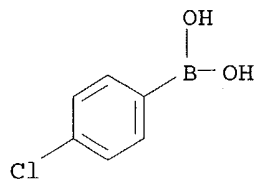
RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



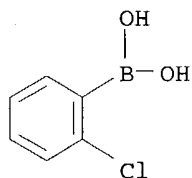
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CN Boronic acid, (4-chlorophenyl)- (9CI) (CA INDEX NAME)



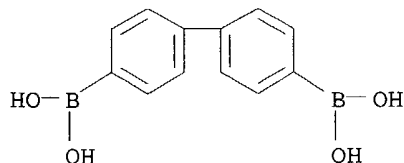
RN 3900-89-8 HCAPLUS

CN Boronic acid, (2-chlorophenyl)- (9CI) (CA INDEX NAME)



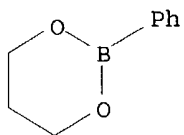
RN 4151-80-8 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4,4'-diylbis- (9CI) (CA INDEX NAME)



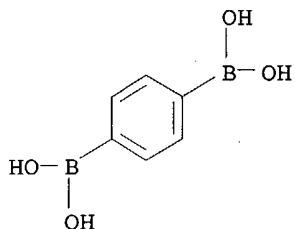
RN 4406-77-3 HCAPLUS

CN 1,3,2-Dioxaborinane, 2-phenyl- (9CI) (CA INDEX NAME)



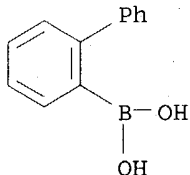
RN 4612-26-4 HCAPLUS

CN Boronic acid, 1,4-phenylenebis- (9CI) (CA INDEX NAME)



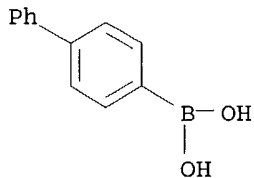
RN 4688-76-0 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-2-yl- (9CI) (CA INDEX NAME)



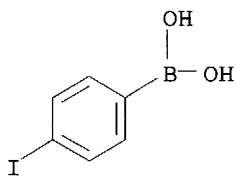
RN 5122-94-1 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)

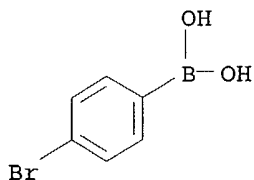


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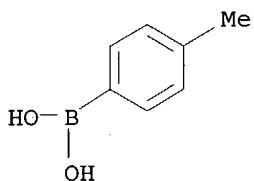
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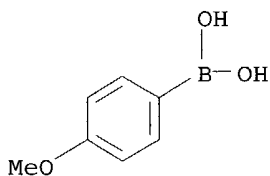
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CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



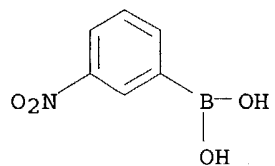
RN 5720-05-8 HCAPLUS  
CN Boronic acid, (4-methylphenyl)- (9CI) (CA INDEX NAME)



RN 5720-07-0 HCAPLUS  
CN Boronic acid, (4-methoxyphenyl)- (9CI) (CA INDEX NAME)

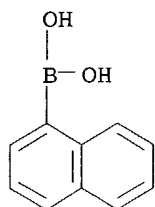


RN 13331-27-6 HCAPLUS  
CN Boronic acid, (3-nitrophenyl)- (9CI) (CA INDEX NAME)



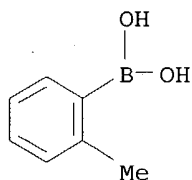
RN 13922-41-3 HCAPLUS

CN Boronic acid, 1-naphthalenyl- (9CI) (CA INDEX NAME)



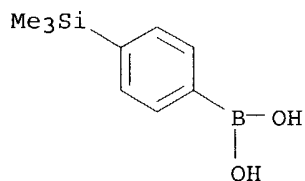
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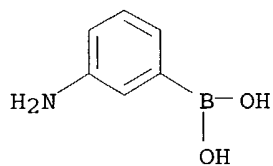
RN 17865-11-1 HCAPLUS

CN Boronic acid, [4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



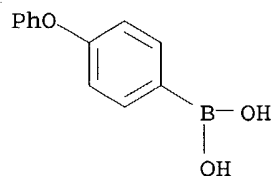
RN 30418-59-8 HCAPLUS

CN Boronic acid, (3-aminophenyl)- (9CI) (CA INDEX NAME)



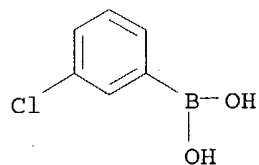
RN 51067-38-0 HCAPLUS

CN Boronic acid, (4-phenoxyphenyl)- (9CI) (CA INDEX NAME)



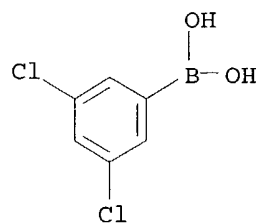
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CN Boronic acid, (3-chlorophenyl)- (9CI) (CA INDEX NAME)



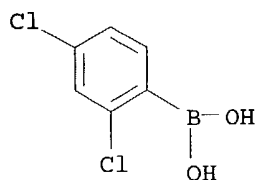
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CN Boronic acid, (3,5-dichlorophenyl)- (9CI) (CA INDEX NAME)

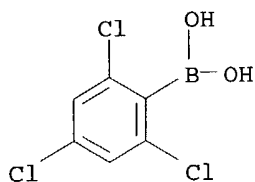


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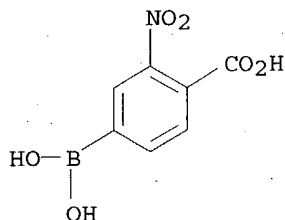
CN Boronic acid, (2,4-dichlorophenyl)- (9CI) (CA INDEX NAME)



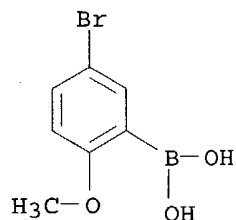
RN 73852-18-3 HCAPLUS  
CN Boronic acid, (2,4,6-trichlorophenyl)- (9CI) (CA INDEX NAME)



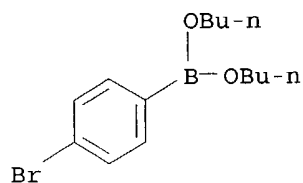
RN 80500-28-3 HCAPLUS  
CN Benzoic acid, 4-borono-2-nitro- (6CI, 9CI) (CA INDEX NAME)



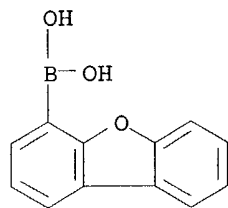
RN 89694-45-1 HCAPLUS  
CN Boronic acid, (5-bromo-2-methoxyphenyl)- (9CI) (CA INDEX NAME)



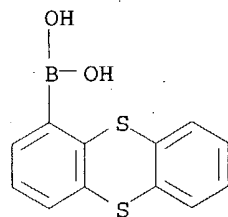
RN 96983-22-1 HCAPLUS  
CN Boronic acid, (4-bromophenyl)-, dibutyl ester (9CI) (CA INDEX NAME)



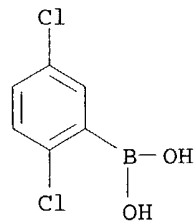
RN 100124-06-9 HCAPLUS  
 CN Boronic acid, 4-dibenzofuranyl- (9CI) (CA INDEX NAME)



RN 108847-76-3 HCAPLUS  
 CN Boronic acid, 1-thianthrenyl- (9CI) (CA INDEX NAME)

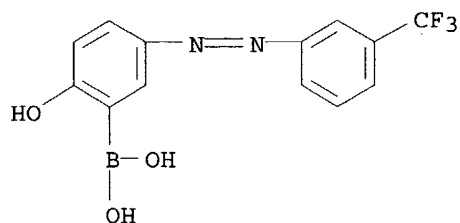


RN 135145-90-3 HCAPLUS  
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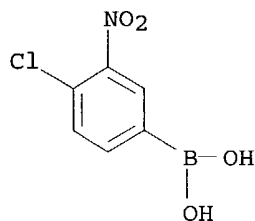
RN 151169-66-3 HCAPLUS  
 CN Boronic acid, [2-hydroxy-5-[[3-(trifluoromethyl)phenyl]azo]phenyl]- (9CI)  
 (CA INDEX NAME)





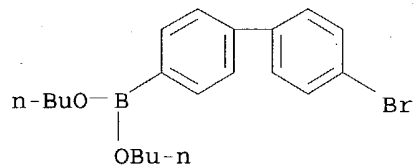
RN 151169-67-4 HCAPLUS

CN Boronic acid, (4-chloro-3-nitrophenyl)- (9CI) (CA INDEX NAME)



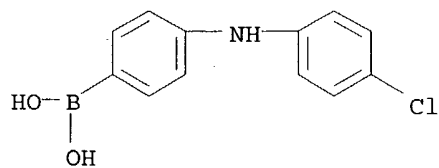
RN 151169-69-6 HCAPLUS

CN Boronic acid, (4'-bromo[1,1'-biphenyl]-4-yl)-, dibutyl ester (9CI) (CA INDEX NAME)



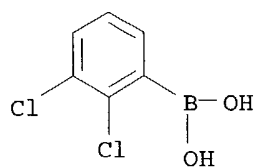
RN 151169-71-0 HCAPLUS

CN Boronic acid, [4-[(4-chlorophenyl)amino]phenyl]- (9CI) (CA INDEX NAME)



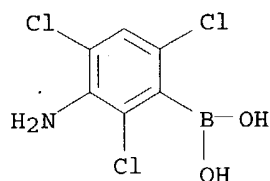
RN 151169-74-3 HCAPLUS

CN Boronic acid, (2,3-dichlorophenyl)- (9CI) (CA INDEX NAME)



RN 151196-37-1 HCAPLUS

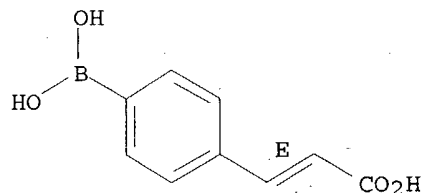
CN Boronic acid, (3-amino-2,4,6-trichlorophenyl)- (9CI) (CA INDEX NAME)



RN 159896-15-8 HCAPLUS

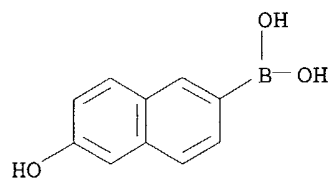
CN 2-Propenoic acid, 3-(4-boronophenyl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



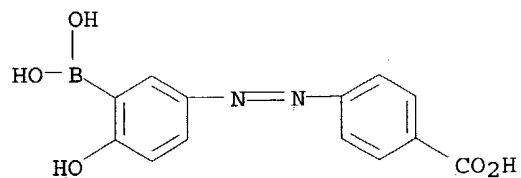
RN 173194-95-1 HCAPLUS

CN Boronic acid, (6-hydroxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)



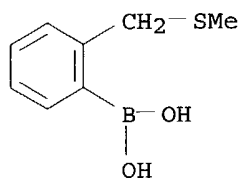
RN 178320-31-5 HCAPLUS

CN Benzoic acid, 4-[(3-borono-4-hydroxyphenyl)azo]- (9CI) (CA INDEX NAME)



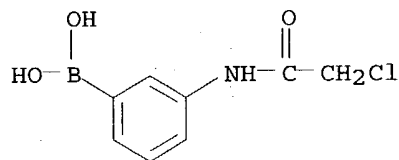
RN 201346-84-1 HCAPLUS

CN Boronic acid, [2-[(methylthio)methyl]phenyl]- (9CI) (CA INDEX NAME)



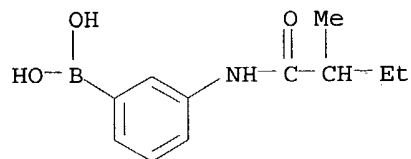
RN 201346-86-3 HCAPLUS

CN Boronic acid, [3-[(chloroacetyl)amino]phenyl]- (9CI) (CA INDEX NAME)



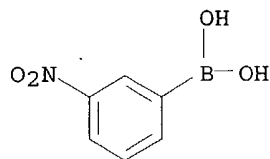
RN 201346-87-4 HCAPLUS

CN Boronic acid, [3-[(2-methyl-1-oxobutyl)amino]phenyl]- (9CI) (CA INDEX NAME)



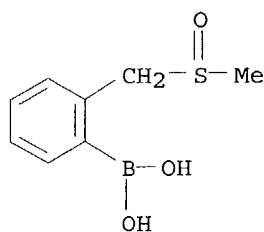
RN 201347-17-3 HCAPLUS

CN Boronic acid, (3-nitrophenyl)-, calcium salt (2:1) (9CI) (CA INDEX NAME)



● 1/2 Ca

RN 201347-20-8 HCAPLUS  
 CN Boronic acid, [2-[(methylsulfinyl)methyl]phenyl]- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 22 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:766279 HCAPLUS

DOCUMENT NUMBER: 128:85737

TITLE: Effects of polymers on the boronic acid enhanced horseradish peroxidase-luminol-hydrogen peroxide reaction

AUTHOR(S): Ji, X.; Kricka, L. J.

CORPORATE SOURCE: Dep. Pathology & Lab. Medicine, Univ. Pennsylvania Medical Center, Philadelphia, PA, 19104, USA

SOURCE: Bioluminescence and Chemiluminescence: Molecular Reporting with Photons, Proceedings of the International Symposium on Bioluminescence and Chemiluminescence, 9th, Woods Hole, Mass., Oct. 4-8, 1996 (1997), Meeting Date 1996, 473-476. Editor(s): Hastings, J. W.; Kricka, L. J.; Stanley, P. E. Wiley: Chichester, UK.

CODEN: 65JYAO

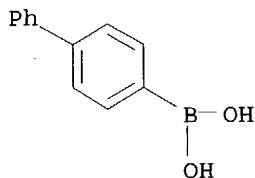
DOCUMENT TYPE: Conference

LANGUAGE: English

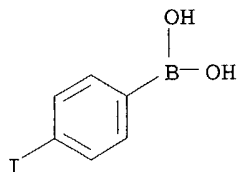
AB Soluble hydroxy-polymers stabilize light emission from boronic acid enhanced horseradish peroxidase catalyzed **chemiluminescent** oxidation of luminol. The results of screening studies of different hydroxy-polymers and the effects of polymer concentration and mol. weight are reported. Hydroxypropyl cellulose, poly(ethylene glycol), poly(tetramethylene ether glycol) were superior to dextran and poly(propylene glycol) in terms of light emission signal, but these polymers also increased the background light emission >2-fold. Increasing the mol. weight of the polymer had no major effect on the stabilization of the light emission for any

combination of polymer or enhancer tested. The polymer-mediated stabilization effect was concentration dependent.

CC 7-3 (Enzymes)  
 ST peroxidase chemiluminescence boronate polymer  
 IT Luminescence, chemiluminescence  
 (effects of polymers on the boronic acid enhanced horseradish peroxidase-luminol-hydrogen peroxide reaction)  
 IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6,  
 4-Iodophenylboronic acid 9004-54-0, Dextran, biological studies  
 9004-64-2, Hydroxypropyl cellulose 25190-06-1, Poly(tetramethylene ether glycol) 25322-68-3, Poly(ethylene glycol) 25322-69-4, Poly(propylene glycol)  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (effects of polymers on the boronic acid enhanced horseradish peroxidase-luminol-hydrogen peroxide reaction)  
 IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6,  
 4-Iodophenylboronic acid  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (effects of polymers on the boronic acid enhanced horseradish peroxidase-luminol-hydrogen peroxide reaction)  
 RN 5122-94-1 HCAPLUS  
 CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 5122-99-6 HCAPLUS  
 CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 23 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1997:636220 HCAPLUS  
 DOCUMENT NUMBER: 127:305048  
 TITLE: Acridan compounds  
 INVENTOR(S): Akhavan-Tafti, Hashem; Arghavani, Zahra; Desilva,

PATENT ASSIGNEE(S): Renuka  
 SOURCE: Lumigen, Inc., USA  
 U.S., 18 pp., Cont.-in-part of U.S. Ser. No. 300,462.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 12  
 PATENT INFORMATION:

| PATENT NO.             | KIND | DATE     | APPLICATION NO. | DATE        |
|------------------------|------|----------|-----------------|-------------|
| US 5670644             | A    | 19970923 | US 1996-647383  | 19960509    |
| US 5491072             | A    | 19960213 | US 1993-61810   | 19930517    |
| US 5593845             | A    | 19970114 | US 1994-205093  | 19940302    |
| US 5523212             | A    | 19960604 | US 1994-228290  | 19940415    |
| JP 08500125            | T2   | 19960109 | JP 1994-525766  | 19940516    |
| JP 3231777             | B2   | 20011126 |                 |             |
| AU 9944594             | A1   | 19991111 | AU 1999-44594   | 19990819    |
| AU 733635              | B2   | 20010517 |                 |             |
| PRIORITY APPLN. INFO.: |      |          | US 1993-61810   | A2 19930517 |
|                        |      |          | US 1994-205093  | A2 19940302 |
|                        |      |          | US 1994-228290  | A2 19940415 |
|                        |      |          | US 1994-300462  | A2 19940902 |
|                        |      |          | WO 1994-US5437  | W 19940516  |
|                        |      |          | AU 1995-34619   | A3 19950830 |

OTHER SOURCE(S): MARPAT 127:305048

AB A **chemiluminescent** assay method, compns., kits, and **chemiluminescent** acridan compds. are described which use a 2-step **chemiluminescent** reaction process. The reaction involves an acridan compound, preferably a derivative of an N-alkyl acridan-9-carboxylic acid, which undergoes a reaction with a peroxide compound, a peroxidase enzyme, and an enhancer under conditions of time, temperature, and pH which permit the accumulation of an intermediate compound, which is subsequently induced to produce a burst of light by raising the pH. The result is generation of very-high-intensity light from the reaction. The peroxidase enzyme is present alone or linked to a member of a specific binding pair in an immunoassay, DNA probe assay, or other assay where the hydrolytic enzyme is bound to a reporter mol. The method is particularly amenable to automated assays because of the separation of the incubation and light-generating steps.

IC ICM C07D285-38  
 ICS C07D295-00; G01N033-533; G01N033-532

NCL 546103000

CC 9-14 (Biochemical Methods)  
 Section cross-reference(s): 3, 15, 27, 80

ST acridan compd prepn **chemiluminescence** enzymic assay; peroxidase detn alkyl acridancarboxylate **chemiluminescence**

IT **Chemiluminescence spectroscopy**  
 Nucleic acid hybridization  
 Test kits  
 (acridan compds. preparation for **chemiluminescence** assays)

IT Antibodies  
 Antigens  
 DNA  
 Haptens  
 Nucleic acids  
 Proteins, general, analysis  
 RNA  
 RL: ANT (Analyte); ANST (Analytical study)

(acridan compds. preparation for **chemiluminescence** assays)

IT Peroxides, reactions  
 RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);  
 RACT (Reactant or reagent); USES (Uses)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT Onium compounds  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation); USES (Uses)  
 (acridinium; acridan compds. preparation for **chemiluminescence**  
 assays)

IT Surfactants  
 (anionic; acridan compds. preparation for **chemiluminescence**  
 assays)

IT **Immunoassay**  
 (**chemiluminescence**; acridan compds. preparation for  
**chemiluminescence** assays)

IT **Immunoassay**  
 (enzyme; acridan compds. preparation for **chemiluminescence** assays)

IT Surfactants  
 (nonionic; acridan compds. preparation for **chemiluminescence**  
 assays)

IT 9035-73-8, Oxidase 9035-82-9, Dehydrogenase  
 RL: ANT (Analyte); ANST (Analytical study)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 9003-99-0, Peroxidase  
 RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study);  
 USES (Uses)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 106-41-2, p-Bromophenol 124-43-6 135-19-3, 2-Naphthol, uses  
 540-38-5, p-Iodophenol 719-54-0, N-Methylacridone **5122-99-6**,  
 4-Iodophenylboronic acid 7400-08-0, p-Hydroxycinnamic acid 7632-04-4,  
 Sodium perborate 7722-84-1, Hydrogen peroxide, uses 15231-91-1,  
 6-Bromo-2-naphthol 130897-36-8 172834-33-2 172834-43-4  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 92-81-9DP, Acridan, derivs. 177535-21-6P 177535-23-8P 177535-24-9P  
 177535-25-0P 197156-16-4P 197156-17-5P 197156-18-6P 197156-19-7P  
 197156-20-0P 197156-35-7P 197156-36-8DP, N-alkyl 197256-32-9P  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation); USES (Uses)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 60-00-4, EDTA, analysis  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 79-37-8, Oxalyl chloride 95-78-3, 2,5-Dimethylaniline 98-59-9,  
 p-Toluenesulfonyl chloride 101-16-6, 3-Methoxydiphenylamine 101-17-7,  
 3-Chlorodiphenylamine 102-56-7, 2,5-Dimethoxyaniline 108-95-2, Phenol,  
 reactions 333-27-7, Methyl triflate 371-42-6, 4-Fluorothiophenol  
 1205-64-7, 3-Methyldiphenylamine 2398-37-0, 3-Bromoanisole 3467-59-2  
 33264-65-2 50868-72-9, 5-Methoxy-2-methylaniline 92248-06-1,  
 Bis(3-methoxyphenyl)amine 113798-74-6, 2,3,6-Trifluorophenol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (acridan compds. preparation for **chemiluminescence** assays)

IT 2050-44-4P, 2,5-Dimethylacetanilide 32446-14-3P 42595-25-5P,  
 3-Chloroacridine-9-carboxylic acid 50868-75-2P 130266-60-3P,  
 3-Methylacridine-9-carboxylic acid 154471-37-1P, 1-Methylacridine-9-  
 carboxylic acid 172834-71-8P 177535-29-4P 177535-32-9P  
 177535-33-0P 177535-37-4P 177535-38-5P 177535-40-9P 177535-41-0P  
 177535-42-1P 177535-44-3P 177535-45-4P 178920-79-1P 197156-21-1P

197156-22-2P 197156-23-3P 197156-24-4P 197156-25-5P 197156-26-6P  
 197156-27-7P 197156-28-8P 197156-29-9P 197156-30-2P 197156-31-3P  
 197156-32-4P 197156-33-5P 197156-34-6P 197256-33-0P 197256-34-1P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
 (Reactant or reagent)

(acridan compds. preparation for **chemiluminescence** assays)

IT 172834-72-9P 177535-43-2P 177535-46-5P

RL: SPN (Synthetic preparation); PREP (Preparation)

(acridan compds. preparation for **chemiluminescence** assays)

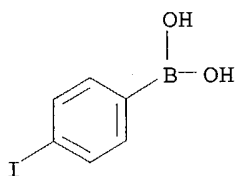
IT 5122-99-6, 4-Iodophenylboronic acid

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(acridan compds. preparation for **chemiluminescence** assays)

RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 24 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:560112 HCAPLUS

DOCUMENT NUMBER: 127:244590

TITLE: Effect of polymers on enhanced  
**chemiluminescent** assays for peroxidase and  
 peroxidase labels

AUTHOR(S): Ji, Xiaoying; Kricka, Larry J.

CORPORATE SOURCE: Department of Pathology and Laboratory Medicine,  
 University of Pennsylvania Medical Center,  
 Philadelphia, PA, 19104, USA

SOURCE: Journal of Bioluminescence and Chemiluminescence  
 (1996), 11(6), 303-307

CODEN: JBCHE7; ISSN: 0884-3996

PUBLISHER: Wiley

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Hydroxypropyl methylcellulose, hydroxyethyl cellulose, and hydroxybutyl  
 methylcellulose stabilized light emission in a boronic acid-enhanced  
**chemiluminescent** assay for horseradish peroxidase. The  
 stabilization of light emission was concentration-dependent and more effective  
 with substituted boronic acid enhancers (e.g. 4-iodophenylboronic acid)  
 than with substituted phenol enhancers (e.g. 4-iodophenol). Hydroxybutyl  
 methylcellulose improved the linearity of the dose-response curve in a  
 peroxidase-based antioxidant assay and stabilized light emission  
 post-consumption of the antioxidant (Trolox). This polymer had no effect  
 on the signal from a peroxidase label immobilized on a membrane (dot blot)  
 or on the inside surface of a microwell in an enzyme immunoassay for TSH.

CC 7-1 (Enzymes)

ST cellulose effect **chemiluminescent** assay peroxidase

IT Immunoassay

(enzyme; effect of polymers on enhanced **chemiluminescent**  
 assays for peroxidase and peroxidase labels)

IT 9002-71-5, Thyrotropin 9003-99-0, Peroxidase



RL: ANT (Analyte); ANST (Analytical study)  
(effect of polymers on enhanced **chemiluminescent** assays for  
peroxidase and peroxidase labels)

IT 540-38-5, 4-Iodophenol 5122-94-1, 4-Biphenylboronic acid  
5122-99-6, 4-Iodophenylboronic acid 5467-74-3,  
4-Bromophenylboronic acid 7400-08-0, 4-Hydroxycinnamic acid 9004-62-0,  
Hydroxyethyl cellulose 9004-65-3, Hydroxypropyl methylcellulose  
9041-56-9, Hydroxybutyl methylcellulose 53188-07-1, Trolox  
159896-15-8

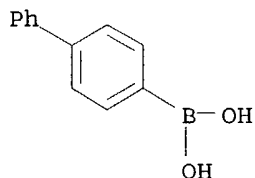
RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(effect of polymers on enhanced **chemiluminescent** assays for  
peroxidase and peroxidase labels)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6,  
4-Iodophenylboronic acid 5467-74-3, 4-Bromophenylboronic acid  
159896-15-8

RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
(effect of polymers on enhanced **chemiluminescent** assays for  
peroxidase and peroxidase labels)

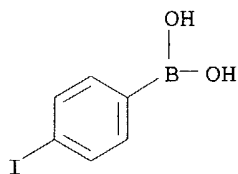
RN 5122-94-1 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



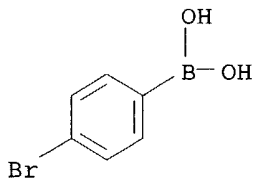
RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



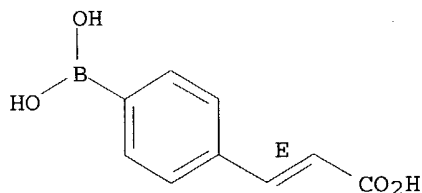
RN 5467-74-3 HCAPLUS

CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



RN 159896-15-8 HCAPLUS  
CN 2-Propenoic acid, 3-(4-boronophenyl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 25 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:360371 HCAPLUS

DOCUMENT NUMBER: 127:92085

TITLE: Synergistic enhancement of the horseradish peroxidase-catalyzed oxidation of luminol by 4-substituted phenylboronic acids

AUTHOR(S): Kricka, Larry J.; Ji, Xiaoying  
CORPORATE SOURCE: Dep. Pathology and Lab. Medicine, Univ. Pennsylvania Medical Center, Philadelphia, PA, 19104, USA

SOURCE: Talanta (1997), 44(6), 1073-1079  
CODEN: TLNTA2; ISSN: 0039-9140

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Combinations of 4-substituted phenylboronic acids [phenyl, iodo, bromo, and trans-4-(3-propenoic acid) substituents] have been discovered to have synergistic effects in the horseradish peroxidase (HRP) catalyzed **chemiluminescent** oxidation of luminol. Three types of effect have been observed: (1) synergistic reduction in the background light emission of a luminol-peroxide assay reagent to a value lower than the background obtained with either enhancer individually; (2) increase in signal to background ratio (S/B) in the presence of HRP to a value higher than the S/B obtained with either enhancer individually (synergy) or to a value higher than the combined S/B obtained with each enhancer (synergistic enhancement); and (3) for some combinations of enhancers, an increase in signal in the presence of HRP to a value higher than the signal obtained with either enhancer individually (synergy), or to a value higher than the combined signal obtained with each enhancer (synergistic enhancement). The magnitude of the effect was moderate but the synergistic decreases in background and increased in signal produced increases in S/B up to four-fold. Examples of synergistic pairs of enhancers included 4-biphenyl and 4-bromophenylboronic acid; 4-biphenyl and 4-iodophenylboronic acid; and trans-4-(3-propenoic acid) and 4-iodophenylboronic acid. Generally, synergy was obtained at several concns. of all of the combinations of enhancers tested, and at different time points in the reaction due to the different light emission kinetics of the enhanced reactions. The mechanism of this synergistic effect has not been elucidated but may involve the enhancers acting at different points in the complex **chemiluminescent** peroxidase catalyzed oxidation reaction.

CC 7-4 (Enzymes)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6,

4-Iodophenylboronic acid **5467-74-3**, 4-Bromophenylboronic acid  
9003-99-0, Peroxidase **192137-70-5**

RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(synergistic enhancement of the horseradish peroxidase-catalyzed oxidation of luminol by 4-substituted phenylboronic acids)

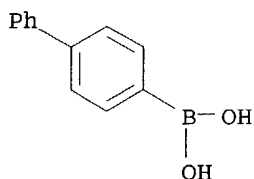
IT **5122-94-1**, 4-Biphenylboronic acid **5122-99-6**,  
4-Iodophenylboronic acid **5467-74-3**, 4-Bromophenylboronic acid  
**192137-70-5**

RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(synergistic enhancement of the horseradish peroxidase-catalyzed oxidation of luminol by 4-substituted phenylboronic acids)

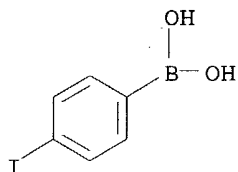
RN **5122-94-1** HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



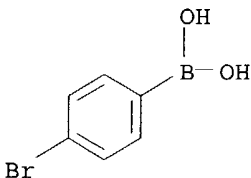
RN **5122-99-6** HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



RN **5467-74-3** HCAPLUS

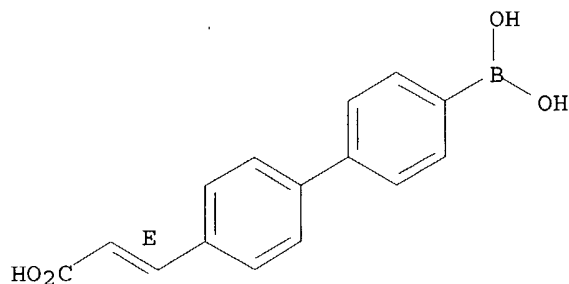
CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



RN **192137-70-5** HCAPLUS

CN 2-Propenoic acid, 3-(4'-borono[1,1'-biphenyl]-4-yl)-, (E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L28 ANSWER 26 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:570608 HCAPLUS

DOCUMENT NUMBER: 125:268952

TITLE: Synthesis and characterization of 4-iodophenylboronic acid: a new enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol

AUTHOR(S): Kricka, Larry J.; Cooper, Mark; Ji, Xiaoying  
CORPORATE SOURCE: Dep. Pathology, Univ. Pennsylvania Med. Center, Philadelphia, PA, 19104, USA

SOURCE: Analytical Biochemistry (1996), 240(1), 119-125  
CODEN: ANBCA2; ISSN: 0003-2697

PUBLISHER: Academic

DOCUMENT TYPE: Journal

LANGUAGE: English

AB 4-Iodophenylboronic acid has been synthesized and shown to be a potent enhancer of the **chemiluminescent** horseradish peroxidase (Type VI-A)-catalyzed oxidation of luminol and isoluminol. The enhancer was effective (>100-fold enhancement) in the concentration range 10-1500  $\mu$ M. Light emission in the presence of the enhancer peaked at 5-10 min after initiation of the reaction and then decayed very slowly. 4-Iodophenylboronic acid also enhanced reactions catalyzed by horseradish peroxidase Type IX. The detection limit for type VI-A horseradish peroxidase was 509 amol, and optimum signal enhancement was obtained at 769  $\mu$ M compared to 154  $\mu$ M for 4-iodophenol under the same conditions.

CC 7-3 (Enzymes)

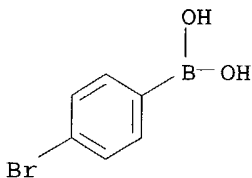
Section cross-reference(s): 9

ST iodophenylboronate prepn enhancer peroxidase luminol  
**chemiluminescence**; isoluminol peroxidase **chemiluminescence**  
enhancer iodophenylboronate prepn

IT **Luminescence, chemi-**  
(synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)

IT Transferrins  
RL: ANT (Analyte); ANST (Analytical study)  
(synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)

- IT 540-38-5, 4-Iodophenol 5467-74-3, 4-Bromophenylboronic acid  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (comparison; synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- IT 5122-99-6P, 4-Iodophenylboronic acid  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- IT 521-31-3, Luminol 3682-14-2, Isoluminol 7722-84-1, Hydrogen peroxide, biological studies 9003-99-0, Peroxidase  
 RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)  
 (synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- IT 121-43-7, Trimethylborate 624-38-4, 1,4-Diiodobenzene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- IT 114448-26-9P, 4-Iodophenyl lithium  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- IT 5467-74-3, 4-Bromophenylboronic acid  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (comparison; synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)
- RN 5467-74-3 HCAPLUS  
 CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



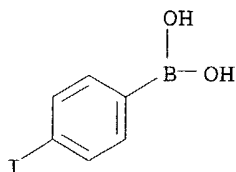
- IT 5122-99-6P, 4-Iodophenylboronic acid  
 RL: ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP

(Preparation); USES (Uses)

(synthesis and characterization of 4-iodophenylboronic acid as an enhancer for the horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol and isoluminol)

RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 27 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:540546 HCAPLUS

DOCUMENT NUMBER: 125:212800

TITLE: Super-sensitive enzyme immunoassay for thyroid stimulating hormone using a new synergistic enhanced **chemiluminescent** endpoint

AUTHOR(S): Kricka, Larry J.; Ji, Xiaoying

CORPORATE SOURCE: Medical Center, University of Pennsylvania, Philadelphia, PA, 19104, USA

SOURCE: Journal of Bioluminescence and Chemiluminescence (1996), 11(3), 137-147

CODEN: JBCHE7; ISSN: 0884-3996

PUBLISHER: Wiley

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The enhancers 1,1'-biphenyl-4-yl boronic acid and 4-iodophenol act synergistically in the horseradish peroxidase-catalyzed oxidation of luminol. This concentration-dependent effect reduces background, increases signal and hence improves signal/background for detection of peroxidase. The same type of synergistic effect was found when 1,1'-biphenyl-4-yl boronic acid was added to a com. enhanced **chemiluminescence** signal reagent (Amerlite Signal Reagent). This synergistic enhanced **chemiluminescent** endpoint (Amerlite Signal Reagent containing 1,1'-biphenyl-4-yl boronic acid) for a horseradish peroxidase label has been tested in the Amerlite TSH and the Amerlite TSH-30 Ultrasensitive assays. The detection limit (mean of 20 replicates of the zero standard + 2SD) in the Amerlite TSH assay was 0.0029 mIU/L, and in the Amerlite TSH-30 Ultrasensitive assay the detection limit was 0.0005 mIU/L using the synergistic enhanced endpoint. Reassessment of the detection limit using a 1:40 dilution of the first standard (0.119 mIU/L) as the lowest assay standard gave

a value of 0.0015 mIU/L for the Amerlite TSH-30 Ultrasensitive assay with the synergistic endpoint. A limited method comparison using samples from euthyroid, hyperthyroid and hypothyroid patients revealed excellent correlation between the conventional and synergistic TSH immunoassays.

CC 2-1 (Mammalian Hormones)

ST TSH detn EIA synergistic **chemiluminescent** endpoint

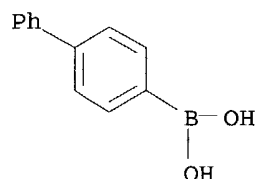
IT Blood analysis

Hyperthyroidism

Hypothyroidism

(TSH determination in human blood by Amerlite TSH and Amerlite TSH-30)

Ultrasensitive EIA with synergistic enhanced **chemiluminescent**  
 endpoint)  
 IT 9002-71-5, Thyroid-stimulating hormone  
 RL: ANT (Analyte); ANST (Analytical study)  
 (TSH determination in human blood by Amerlite TSH and Amerlite TSH-30  
 Ultrasensitive EIA with synergistic enhanced **chemiluminescent**  
 endpoint)  
 IT 5122-94-1  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (TSH determination in human blood by Amerlite TSH and Amerlite TSH-30  
 Ultrasensitive EIA with synergistic enhanced **chemiluminescent**  
 endpoint)  
 IT 5122-94-1  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (TSH determination in human blood by Amerlite TSH and Amerlite TSH-30  
 Ultrasensitive EIA with synergistic enhanced **chemiluminescent**  
 endpoint)  
 RN 5122-94-1 HCAPLUS  
 CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



L28 ANSWER 28 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:350342 HCAPLUS  
 DOCUMENT NUMBER: 125:29590  
 TITLE: **Chemiluminescent** assay utilizing an acridan  
 and peroxidase  
 INVENTOR(S): Akhaven-Tafti, Hashem; Arghavani, Zahra; Desilva,  
 Renuka  
 PATENT ASSIGNEE(S): Lumigen, Inc., USA  
 SOURCE: PCT Int. Appl., 52 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 12  
 PATENT INFORMATION:

| PATENT NO.                                                         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 9607912                                                         | A1   | 19960314 | WO 1995-US11031 | 19950830 |
| W: AU, CA, CN, FI, JP, KR                                          |      |          |                 |          |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
| CA 2197669                                                         | AA   | 19960314 | CA 1995-2197669 | 19950830 |
| AU 9534619                                                         | A1   | 19960327 | AU 1995-34619   | 19950830 |
| EP 778946                                                          | A1   | 19970618 | EP 1995-931030  | 19950830 |
| EP 778946                                                          | B1   | 20021023 |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, NL, SE          |      |          |                 |          |
| CN 1161083                                                         | A    | 19971001 | CN 1995-195266  | 19950830 |
| JP 10508191                                                        | T2   | 19980818 | JP 1995-509567  | 19950830 |

|            |    |          |                |          |
|------------|----|----------|----------------|----------|
| AT 226728  | E  | 20021115 | AT 1995-931030 | 19950830 |
| AU 9944594 | A1 | 19991111 | AU 1999-44594  | 19990819 |
| AU 733635  | B2 | 20010517 |                |          |

PRIORITY APPLN. INFO.:                      US 1994-300462            A 19940902  
                                                  AU 1995-34619            A3 19950830  
                                                  WO 1995-US11031          W 19950830

OTHER SOURCE(S):            MARPAT 125:29590

AB A **chemiluminescent** assay method utilizes a 2-step **chemiluminescent** reaction involving an acridan prepared by using standard reactions. In particular, a N-alkylacridan-9-carboxylic acid derivative undergoes a reaction with a peroxide compound, a peroxidase enzyme and an enhancer, which permit the accumulation of an intermediate which is subsequently induced to produce a burst of light by raising the pH. The result is a generation of very high intensity light from the reaction. The peroxidase enzyme is present alone or linked to a member of a specific binding pair in an immunoassay, DNA probe assay or other assay where the hydrolytic enzyme is bound to a reporter mol. The method is particularly amenable to automated assay because of the separation of the incubation and light generating steps.

IC ICM G01N033-535

ICS C07D219-04

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 27

ST acridan peroxidase peroxide **chemiluminescence** prepnIT **Spectrochemical analysis**

(**chemiluminescence**, **chemiluminescent** assay  
utilizing acridan compound and peroxidase)

IT 106-41-2, p-Bromophenol 124-43-6, Urea peroxide 135-19-3, 2-Naphthol,  
uses 540-38-5, p-Iodophenol **5122-99-6**, 4-Iodophenylboronic  
acid 7400-08-0, p-Hydroxycinnamic acid 7722-84-1, Hydrogen peroxide,  
uses 9003-99-0, Peroxidase 15231-91-1, 6-Bromo-2-naphthol

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(**chemiluminescent** assay utilizing acridan compound and  
peroxidase)

IT 172834-40-1P 177535-19-2P 177535-20-5P 177535-21-6P 177535-22-7P  
177535-23-8P 177535-24-9P 177535-25-0P

RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic  
preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant  
or reagent); USES (Uses)

(**chemiluminescent** assay utilizing acridan compound and  
peroxidase)

IT 101-16-6, 3-Methoxydiphenylamine 371-42-6, 4-Fluorothiophenol  
42595-25-5 113798-74-6, 2,3,6-Trifluorophenol 130266-60-3  
154471-37-1 173407-17-5 177535-30-7 177535-31-8 177535-42-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(**chemiluminescent** assay utilizing acridan compound and  
peroxidase)

IT 172834-54-7P 172834-70-7P 172834-71-8P 172834-72-9P 177535-26-1P  
177535-27-2P 177535-28-3P 177535-29-4P 177535-32-9P 177535-34-1P  
177535-35-2P 177535-36-3P 177535-37-4P 177535-39-6P 177535-40-9P  
177535-41-0P 177535-43-2P 177535-44-3P 177535-45-4P 177535-46-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)

(**chemiluminescent** assay utilizing acridan compound and  
peroxidase)

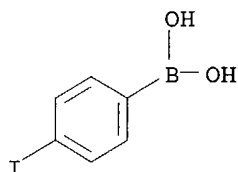
IT **5122-99-6**, 4-Iodophenylboronic acid

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)

(**chemiluminescent** assay utilizing acridan compound and



peroxidase)  
 RN 5122-99-6 HCAPLUS  
 CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 29 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1996:323929 HCAPLUS  
 DOCUMENT NUMBER: 125:53012  
 TITLE: Enhancement of **chemiluminescent** reactions  
 INVENTOR(S): Kricka, Larry J.  
 PATENT ASSIGNEE(S): British Technology Group Limited, UK  
 SOURCE: U.S., 18 pp., Cont.-in-part of U.S. Ser. No. 41,233,  
 abandoned.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

| PATENT NO.                                | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------------------------------------|------|----------|-----------------|----------|
| US 5512451                                | A    | 19960430 | US 1994-217845  | 19940325 |
| AU 9463827                                | A1   | 19941024 | AU 1994-63827   | 19940331 |
| EP 692033                                 | A1   | 19960117 | EP 1994-911267  | 19940331 |
| EP 692033                                 | B1   | 19980311 |                 |          |
| R: BE, CH, DE, ES, FR, IE, IT, LI, NL, SE |      |          |                 |          |
| JP 08508342                               | T2   | 19960903 | JP 1994-521849  | 19940331 |
| US 5629168                                | A    | 19970513 | US 1995-478336  | 19950607 |
| FI 9504653                                | A    | 19950929 | FI 1995-4653    | 19950929 |
| PRIORITY APPLN. INFO.:                    |      |          | GB 1993-6888    | 19930401 |
|                                           |      |          | US 1993-41233   | 19930401 |
|                                           |      |          | US 1992-833153  | 19920210 |
|                                           |      |          | US 1992-925689  | 19920807 |
|                                           |      |          | US 1993-157504  | 19931126 |
|                                           |      |          | WO 1994-GB700   | 19940331 |

OTHER SOURCE(S): MARPAT 125:53012

AB In enhanced **chemiluminescent** (ECL) reactions of a fused aromatic diacyl cyclic hydrazide such as luminol, a peroxidase enzyme catalyst, an oxidant such as hydrogen peroxide, and an enhancer, it is advantageous to use a combination of an organoboron enhancer such as 4-biphenylboronic acid with a non-boron-containing enhancer, especially a phenolic or aromatic

amine enhancer, particularly 4-iodophenol. ECL reactions are useful in diagnostic assays.

IC ICM C12Q001-28

ICS C07H015-00

NCL 435028000

CC 9-5 (Biochemical Methods)

Section cross-reference(s): 1, 3, 73, 80

ST **chemiluminescence** reaction organoboron phenolic enhancer  
peroxidase; immunoassay **chemiluminescence** reaction enhancer

IT Blood analysis  
Immunoassay  
Nucleic acid hybridization  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT Antibodies  
Antigens  
RL: ANT (Analyte); ANST (Analytical study)  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT Amines, uses  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT Phenols, uses  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT **Spectrochemical analysis**  
(**chemiluminescence**, **chemiluminescent** reactions  
enhancement with organoboron and phenolic or amine compds.)

IT Immunoassay  
(enzyme, **chemiluminescent** reactions enhancement with  
organoboron and phenolic or amine compds.)

IT Immunoassay  
(enzyme-linked immunosorbent assay, **chemiluminescent**  
reactions enhancement with organoboron and phenolic or amine compds.)

IT 7722-84-1, Hydrogen peroxide, analysis 9002-71-5, TSH  
RL: ANT (Analyte); ANST (Analytical study)  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT 9003-99-0, Peroxidase  
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study);  
USES (Uses)  
(**chemiluminescent** reactions enhancement with organoboron and  
phenolic or amine compds.)

IT 92-04-6, 2-Chloro-4-phenylphenol 92-69-3, 4-Phenylphenol 95-77-2,  
3,4-Dichlorophenol 98-54-4, 4-tert-Butylphenol 101-53-1,  
4-Benzylphenol 103-90-2, 4-Acetamidophenol 104-94-9 106-41-2,  
4-Bromophenol 106-44-5, 4-Methylphenol, uses 106-48-9, 4-Chlorophenol  
120-83-2, 2,4-Dichlorophenol 135-19-3, Naphth-2-ol, uses 366-29-0,  
N,N,N',N'-Tetramethylbenzidine 521-31-3, Luminol 540-38-5,  
4-Iodophenol 573-97-7, 1-Bromonaphth-2-ol 831-82-3, 4-Phenoxyphenol  
1634-82-8 1679-18-1, 4-Chlorophenylboronic acid 1689-82-3,  
4-Phenylazophenol 1965-09-9 2664-63-3 2975-55-5 3558-83-6,  
4-4'-Hydroxyphenylbenzophenone 3964-56-5, 4-Bromo-2-chlorophenol  
4426-21-5, Diphenylborinic anhydride 5122-94-1,  
4-Biphenylboronic acid 5122-99-6, 4-Iodophenylboronic acid  
5467-74-3, p-Bromophenylboronic acid 7400-08-0,  
4-Hydroxycinnamic acid 7440-42-8D, Boron, organic compds. 10041-02-8,  
4-Imidazol-1-ylphenol 15015-57-3, 4-Hydroxyphenyl disulfide  
15231-91-1, 6-Bromo-2-naphthol 16239-18-2, 1,6-Dibromonaphth-2-ol  
17865-11-1, 4-Trimethylsilylbenzeneboronic acid 23147-97-9  
23567-67-1 23795-02-0, Ethyl 3-4-hydroxyphenylpropionate 39349-73-0,  
Perborate 46913-53-5 83474-09-3 92681-33-9 93361-16-1  
96983-22-1 115252-18-1 134459-06-6 143323-55-1 144774-20-9  
144774-21-0 151169-66-3 151169-67-4,

4-Chloro-3-nitrophenylboronic acid 151169-69-6 151169-70-9  
151169-71-0 159896-15-8 178320-31-5

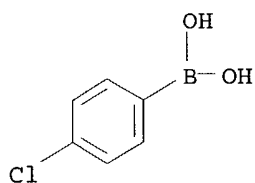
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(chemiluminescent reactions enhancement with organoboron and  
phenolic or amine compds.)

IT 1679-18-1, 4-Chlorophenylboronic acid 5122-94-1,  
4-Biphenylboronic acid 5122-99-6, 4-Iodophenylboronic acid  
5467-74-3, p-Bromophenylboronic acid 17865-11-1,  
4-Trimethylsilylbenzeneboronic acid 96983-22-1  
151169-66-3 151169-67-4, 4-Chloro-3-nitrophenylboronic  
acid 151169-69-6 151169-71-0 159896-15-8  
178320-31-5

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(chemiluminescent reactions enhancement with organoboron and  
phenolic or amine compds.)

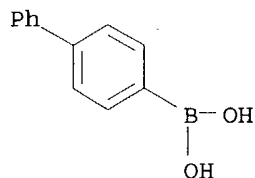
RN 1679-18-1 HCAPLUS

CN Boronic acid, (4-chlorophenyl)- (9CI) (CA INDEX NAME)



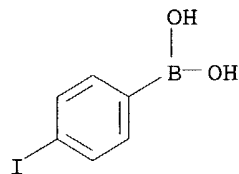
RN 5122-94-1 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



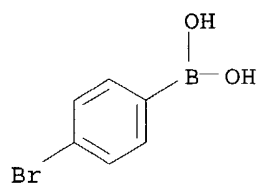
RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



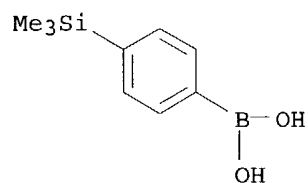
RN 5467-74-3 HCAPLUS

CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



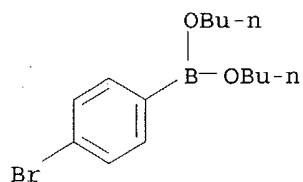
RN 17865-11-1 HCAPLUS

CN Boronic acid, [4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



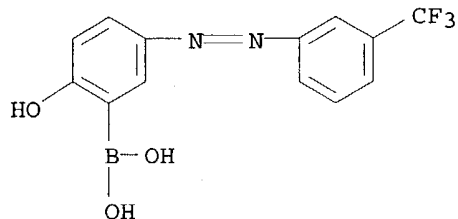
RN 96983-22-1 HCAPLUS

CN Boronic acid, (4-bromophenyl)-, dibutyl ester (9CI) (CA INDEX NAME)



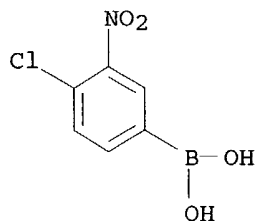
RN 151169-66-3 HCAPLUS

CN Boronic acid, [2-hydroxy-5-[[3-(trifluoromethyl)phenyl]azo]phenyl]- (9CI)  
(CA INDEX NAME)



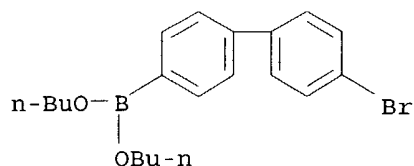
RN 151169-67-4 HCAPLUS

CN Boronic acid, (4-chloro-3-nitrophenyl)- (9CI) (CA INDEX NAME)



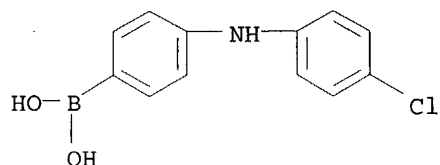
RN 151169-69-6 HCAPLUS

CN Boronic acid, (4'-bromo[1,1'-biphenyl]-4-yl)-, dibutyl ester (9CI) (CA INDEX NAME)



RN 151169-71-0 HCAPLUS

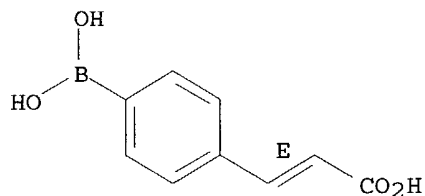
CN Boronic acid, [4-[(4-chlorophenyl)amino]phenyl]- (9CI) (CA INDEX NAME)



RN 159896-15-8 HCAPLUS

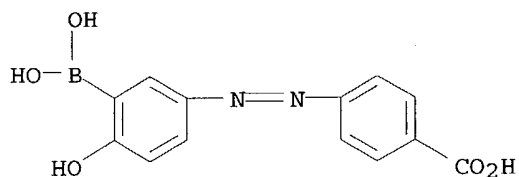
CN 2-Propenoic acid, 3-(4-boronophenyl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 178320-31-5 HCAPLUS

CN Benzoic acid, 4-[(3-borono-4-hydroxyphenyl)azo]- (9CI) (CA INDEX NAME)



L28 ANSWER 30 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1996:148680 HCAPLUS

DOCUMENT NUMBER: 124:254001

TITLE: Comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione and luminol as co-substrates for detection of horseradish peroxidase in enhanced **chemiluminescent** reactions

AUTHOR(S): Kricka, Larry J.; Ji, Xiaoying; Thorpe, Gary H. G.; Edwards, Brooks; Voyta, John; Bronstein, Irena

CORPORATE SOURCE: Dep. Pathology Laboratory Medicine, Univ. Pennsylvania, Philadelphia, PA, 19104, USA

SOURCE: Journal of Immunoassay (1996), 17(1), 67-83  
CODEN: JOUIDK; ISSN: 0197-1522

PUBLISHER: Dekker

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The utility of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione (HDP) as a co-substrate for the **chemiluminescent** detection of horseradish peroxidase was assessed. Several substituted aryl boronic acid derivs. (4-Ph, 4-iodo) acted as potent enhancers of the peroxidase catalyzed reaction. Addition of chelating agents (EDTA) and surfactants (Tween-20 and [poly(vinylbenzyl)tributylphosphonium chloride-poly(vinylbenzyl)triethylphosphonium chloride copolymer]) modulated background light emission and the intensity and duration of the signal from both HDP and luminol. However, HDP was found to be inferior to luminol in the peroxidase assay. Comparative studies revealed that at 500 amol of peroxidase the S/B was ten-fold higher using a com. luminol-based signal reagent as compared with an HDP-EDTA-Tween-20 reagent (S/B t = 0 min 21.8 vs. 1.7, S/B t = 10 min 17.8 vs. 2.0).

CC 7-1 (Enzymes)

ST peroxidase **chemiluminescent** detn hydroxydihydrophthalazinedione luminol

IT 9003-99-0, Peroxidase

RL: ANT (Analyte); ANST (Analytical study)

(comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione and luminol as co-substrates for detection of horseradish peroxidase in enhanced **chemiluminescent** reactions)

IT 521-31-3, Luminol 7600-08-0, 5-Hydroxy-2,3-dihydrophthalazine-1,4-dione

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione and luminol as co-substrates for detection of horseradish peroxidase in enhanced **chemiluminescent** reactions)

IT 5122-94-1 159896-15-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(enhancer; comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione and luminol as co-substrates for detection of horseradish peroxidase in enhanced **chemiluminescent** reactions)

IT 60-00-4, EDTA, uses 9005-64-5, Tween-20

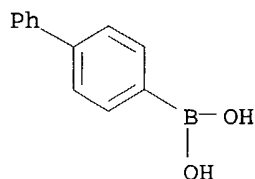
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(stabilizer; comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione  
and luminol as co-substrates for detection of horseradish peroxidase in  
enhanced **chemiluminescent** reactions)

IT 5122-94-1 159896-15-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(enhancer; comparison, of 5-hydroxy-2,3-dihydrophthalazine-1,4-dione  
and luminol as co-substrates for detection of horseradish peroxidase in  
enhanced **chemiluminescent** reactions)

RN 5122-94-1 HCAPLUS

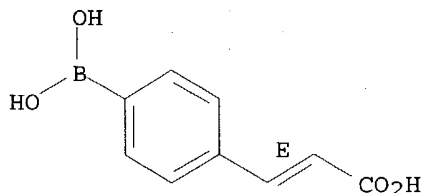
CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



RN 159896-15-8 HCAPLUS

CN 2-Propenoic acid, 3-(4-boronophenyl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L28 ANSWER 31 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:702883 HCAPLUS

DOCUMENT NUMBER: 123:137837

TITLE: New enhancers for the **chemiluminescent**  
peroxidase catalyzed **chemiluminescent**  
oxidation of pyrogallol and purpurogallin

AUTHOR(S): Nozaki, Osamu; Ji, Xiaoying; Kricka, Larry J.

CORPORATE SOURCE: Department of Pathology and Laboratory Medicine,  
University of Pennsylvania, Philadelphia, PA,  
19104-4283, USA

SOURCE: Journal of Bioluminescence and Chemiluminescence  
(1995), 10(3), 151-6

CODEN: JBCHE7; ISSN: 0884-3996

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effects of various boronate compds., 4-biphenylboronic acid,  
4-bromobenzene-boronic acid, trans-4-(3-propionic acid)phenylboronic acid  
and 4-iodophenylboronic acid, on the horseradish peroxidase (HRP)  
catalyzed **chemiluminescent** oxidation of pyrogallol and  
purpurogallin by peroxide were investigated. Trans-4-(3-Propionic

acid)phenylboronic acid produced a 13.7-fold enhancement in the peak light emission from the **chemiluminescent** HRP catalyzed pyrogallol reaction (detection limit for HRP < 1.25 fmol). At low enhancer concentration

a

single peak of light emission was observed and as the enhancer concentration increased the time to peak light emission became progressively longer. The **chemiluminescence** showed two peaks at higher concns. (>54.3  $\mu\text{mol/L}$ ) and the individual peak times depended upon the concentration of the enhancer. All of the boronates enhanced peak light emission in the **chemiluminescent** HRP catalyzed purpurogallin reaction. 4-Biphenylboronic acid was the most effective and it enhanced peak light emission 314-fold. The practical detection limit for HRP (Type VIA) using this enhancer was 4.18 pmol (peak emission at 20 min). This compound also enhanced peak light emission 232-fold from a **chemiluminescent** HRP-purpurogallin reaction in which mol. oxygen replaced peroxide as the oxidant.

CC 9-5 (Biochemical Methods)

ST enhancer **chemiluminescent** peroxidase oxidn pyrogallol  
purpurogallin

IT Oxidation

(**chemiluminescent**; new enhancers for **chemiluminescent**  
peroxidase catalyzed **chemiluminescent** oxidation of pyrogallol  
and purpurogallin)

IT 9003-99-0, Peroxidase

RL: CAT (Catalyst use); USES (Uses)

(new enhancers for **chemiluminescent** peroxidase catalyzed  
**chemiluminescent** oxidation of pyrogallol and purpurogallin)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6

5467-74-3, 4-Bromobenzene-boronic acid 166316-48-9

RL: NUU (Other use, unclassified); USES (Uses)

(new enhancers for **chemiluminescent** peroxidase catalyzed  
**chemiluminescent** oxidation of pyrogallol and purpurogallin)

IT 87-66-1, Pyrogallol 569-77-7, Purpurogallin

RL: RCT (Reactant); RACT (Reactant or reagent)

(new enhancers for **chemiluminescent** peroxidase catalyzed  
**chemiluminescent** oxidation of pyrogallol and purpurogallin)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6

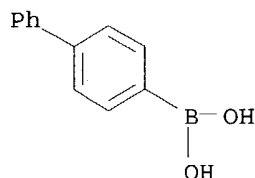
5467-74-3, 4-Bromobenzene-boronic acid 166316-48-9

RL: NUU (Other use, unclassified); USES (Uses)

(new enhancers for **chemiluminescent** peroxidase catalyzed  
**chemiluminescent** oxidation of pyrogallol and purpurogallin)

RN 5122-94-1 HCAPLUS

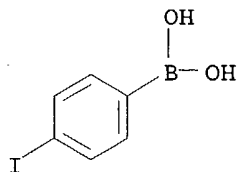
CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



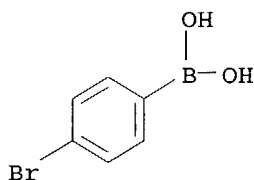
RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)

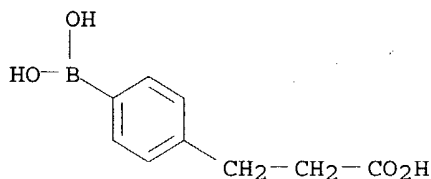




RN 5467-74-3 HCAPLUS  
CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



RN 166316-48-9 HCAPLUS  
CN Benzenepropanoic acid, 4-borono- (9CI) (CA INDEX NAME)



L28 ANSWER 32 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
ACCESSION NUMBER: 1995:485390 HCAPLUS  
DOCUMENT NUMBER: 123:50528  
TITLE: 4-Phenylboronic acid: a new type of enhancer for the horseradish peroxidase catalyzed chemiluminescent oxidation of luminol  
AUTHOR(S): Kricka, Larry J.; Ji, Xiaoying  
CORPORATE SOURCE: Department of Pathology and Laboratory Medicine, University of Pennsylvania, Philadelphia, PA, 19104, USA  
SOURCE: Journal of Bioluminescence and Chemiluminescence (1995), 10(1), 49-54  
CODEN: JBCHE7; ISSN: 0884-3996  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB 4-Phenylboronic acid enhances the light emission from the horseradish peroxidase-catalyzed oxidation of luminol by hydrogen peroxide. Optimization studies showed that the greatest enhancement was obtained using micromolar concns. of the new enhancer. The largest degree of enhancement was found with the basic isoenzyme of horseradish peroxidase (Type VIA), and lesser degrees of enhancement were obtained with Type VII and Type IX horseradish

peroxidase. The enhancer was also effective in the peroxidase-catalyzed oxidation of isoluminol by peroxide.

CC 7-1 (Enzymes)

ST phenylboronate enhancer peroxidase **chemiluminescence** luminol

IT 9003-99-0, Peroxidase

RL: ANT (Analyte); ANST (Analytical study)  
(4-phenylboronic acid as new type of enhancer for horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol)

IT 5122-94-1

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(4-phenylboronic acid as new type of enhancer for horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol)

IT 521-31-3, Luminol 3682-14-2, Isoluminol

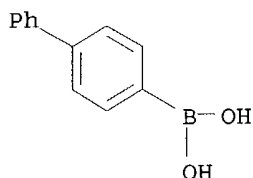
RL: RCT (Reactant); RACT (Reactant or reagent)  
(4-phenylboronic acid as new type of enhancer for horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol)

IT 5122-94-1

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(4-phenylboronic acid as new type of enhancer for horseradish peroxidase-catalyzed **chemiluminescent** oxidation of luminol)

RN 5122-94-1 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



L28 ANSWER 33 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:264714 HCAPLUS

DOCUMENT NUMBER: 122:27259

TITLE: Enhancers for **chemiluminescent** reactions

INVENTOR(S): Kricka, Larry Jan

PATENT ASSIGNEE(S): British Technology Group Ltd., UK

SOURCE: Brit. UK Pat. Appl., 47 pp.  
CODEN: BAXXDU

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

| PATENT NO.                                                         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------------------------------------------------------|------|----------|-----------------|----------|
| GB 2276721                                                         | A1   | 19941005 | GB 1994-6587    | 19940331 |
| GB 2276721                                                         | B2   | 19960821 |                 |          |
| WO 9423060                                                         | A2   | 19941013 | WO 1994-GB700   | 19940331 |
| WO 9423060                                                         | A3   | 19941124 |                 |          |
| W: AU, CA, FI, JP                                                  |      |          |                 |          |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
| CA 2157592                                                         | AA   | 19941013 | CA 1994-2157592 | 19940331 |
| AU 9463827                                                         | A1   | 19941024 | AU 1994-63827   | 19940331 |
| EP 692033                                                          | A1   | 19960117 | EP 1994-911267  | 19940331 |

EP 692033 B1 19980311  
 R: BE, CH, DE, ES, FR, IE, IT, LI, NL, SE  
 JP 08508342 T2 19960903 JP 1994-521849 19940331  
 US 5629168 A 19970513 US 1995-478336 19950607  
 FI 9504653 A 19950929 FI 1995-4653 19950929  
 PRIORITY APPLN. INFO.: GB 1993-6888 19930401  
 US 1992-833153 19920210  
 US 1992-925689 19920807  
 US 1993-157504 19931126  
 WO 1994-GB700 19940331

AB In enhanced **chemiluminescent** (ECL) reactions of a fused aromatic diacyl cyclic hydrazide such as luminol, a peroxidase enzyme catalyst, an oxidant such as hydrogen peroxide and an enhancer, it has been found advantageous to use a combination of an organoboron enhancer such as 4-biphenylboronic acid with a non boron-containing enhancer, especially a phenolic or aromatic amine enhancer, particularly 4-iodophenol ECL reactions are useful in diagnostic assay.

IC ICM G01N021-76  
 ICS C12Q001-28; G01N033-58

CC 9-5 (Biochemical Methods)

ST **chemiluminescent** enhancer arom diacyl cyclic hydrazide; peroxidase enzyme oxidant **chemiluminescent** reaction enhancer

IT Blood analysis  
**Luminescence, chemi-**  
 (enhancers for **chemiluminescent** reactions)

IT Hydrazides  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (cyclic, fused aromatic diacyl; enhancers for **chemiluminescent** reactions)

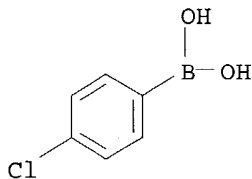
IT 9002-71-5, Thyrotropin  
 RL: ANT (Analyte); ANST (Analytical study)  
 (enhancers for **chemiluminescent** reactions)

IT 9003-99-0, Peroxidase  
 RL: CAT (Catalyst use); USES (Uses)  
 (enhancers for **chemiluminescent** reactions)

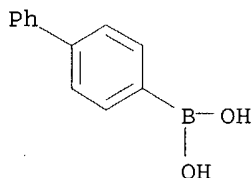
IT 92-04-6, 2-Chloro-4-Phenylphenol 92-69-3, 4-Phenylphenol 95-77-2, 3,4-Dichlorophenol 98-54-4 101-53-1, 4-Benzylphenol 103-90-2, 4-Acetamidophenol 104-94-9 106-41-2, 4-Bromophenol 106-44-5, uses 106-48-9, 4-Chlorophenol 120-83-2, 2,4-Dichlorophenol 135-19-3, 2-Naphthalenol, uses 540-38-5, 4-Iodophenol 573-97-7 637-89-8 831-82-3, 4-Phenoxyphenol 1634-82-8 **1679-18-1**, 4-Chlorophenylboronic acid 1689-82-3, 4-(Phenylazo)phenol 1965-09-9 2848-16-0 2975-55-5 3558-83-6, 4-(4'-Hydroxyphenyl)benzophenone 3964-56-5, 4-Bromo-2-chlorophenol **5122-94-1**, 4-Biphenylboronic acid **5122-99-6** **5467-74-3** 7400-08-0, 4-Hydroxycinnamic acid 10041-02-8 15015-57-3, 4-Hydroxyphenyl disulfide 15231-91-1 16239-18-2 **17865-11-1**, 4-(Trimethylsilyl)benzeneboronic acid 23567-67-1 23795-02-0, Ethyl 3-(4-hydroxyphenyl)propionate 34314-06-2, Tetramethylbenzidine 83474-09-3 92681-33-9 **96983-22-1** 144774-20-9 144774-21-0 150296-58-5 **151169-66-3** **151169-67-4**, 4-Chloro-3-nitrophenylboronic acid **151169-69-6** 151169-70-9 **151169-71-0** **159896-15-8**  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (enhancers for **chemiluminescent** reactions)

IT 521-31-3, Luminol 1445-69-8 7722-84-1, Hydrogen peroxide, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (enhancers for **chemiluminescent** reactions)

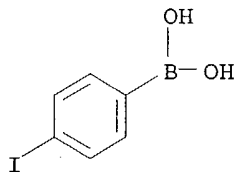
IT 1679-18-1, 4-Chlorophenylboronic acid 5122-94-1,  
4-Biphenylboronic acid 5122-99-6 5467-74-3  
17865-11-1, 4-(Trimethylsilyl)benzeneboronic acid  
96983-22-1 151169-66-3 151169-67-4,  
4-Chloro-3-nitrophenylboronic acid 151169-69-6  
151169-71-0 159896-15-8  
RL: MOA (Modifier or additive use); USES (Uses)  
(enhancers for **chemiluminescent** reactions)  
RN 1679-18-1 HCAPLUS  
CN Boronic acid, (4-chlorophenyl)- (9CI) (CA INDEX NAME)



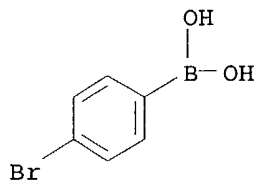
RN 5122-94-1 HCAPLUS  
CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



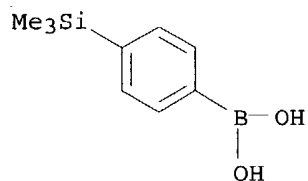
RN 5122-99-6 HCAPLUS  
CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



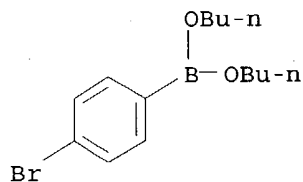
RN 5467-74-3 HCAPLUS  
CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



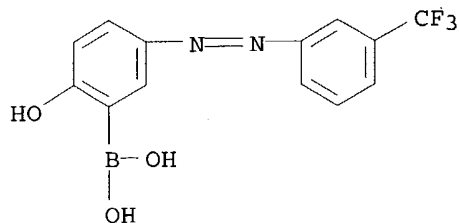
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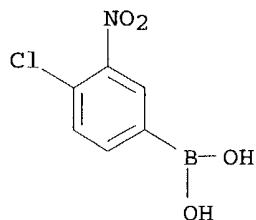
RN 96983-22-1 HCAPLUS  
 CN Boronic acid, (4-bromophenyl)-, dibutyl ester (9CI) (CA INDEX NAME)



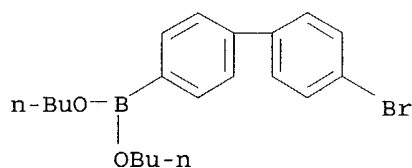
RN 151169-66-3 HCAPLUS  
 CN Boronic acid, [2-hydroxy-5-[[3-(trifluoromethyl)phenyl]azo]phenyl]- (9CI)  
 (CA INDEX NAME)



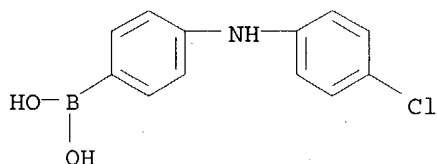
RN 151169-67-4 HCAPLUS  
 CN Boronic acid, (4-chloro-3-nitrophenyl)- (9CI) (CA INDEX NAME)



RN 151169-69-6 HCAPLUS  
 CN Boronic acid, (4'-bromo[1,1'-biphenyl]-4-yl)-, dibutyl ester (9CI) (CA INDEX NAME)

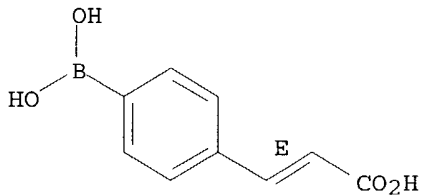


RN 151169-71-0 HCAPLUS  
 CN Boronic acid, [4-[(4-chlorophenyl)amino]phenyl]- (9CI) (CA INDEX NAME)



RN 159896-15-8 HCAPLUS  
 CN 2-Propenoic acid, 3-(4-boronophenyl)-, (2E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L28 ANSWER 34 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1994:675102 HCAPLUS  
 DOCUMENT NUMBER: 121:275102  
 TITLE: Rate constants for reactions of horseradish peroxidase compounds I and II with 4-substituted arylboronic

acids

AUTHOR(S): Sun, Weimei; Ji, Xiaoying; Kricka, Larry J.; Dunford, H. Brian

CORPORATE SOURCE: Dep. Chem., Univ. Alberta, Edmonton, AB, T6G 2G2, Can.

SOURCE: Canadian Journal of Chemistry (1994), 72(10), 2159-62  
CODEN: CJCHAG; ISSN: 0008-4042

PUBLISHER: National Research Council of Canada

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The rate consts. for the reactions of horseradish peroxidase compound I (k1) and compound II (k2) with three 4-substituted arylboronic acids, which enhance **chemiluminescence** in the horseradish peroxidase catalyzed oxidation of luminol by hydrogen peroxide, were determined at pH 8.6, total ionic strength 0.11 M, using stopped-flow kinetic measurements. For comparison, the rate consts. of the reactions of 4-iodophenol with compds. I and II were also determined under the same exptl. conditions. The three arylboronic acid derivs. and their rate consts. are: 4-biphenylboronic acid,  $k_1 = (1.21 \pm 0.08) + 106 \text{ M}^{-1} \text{ s}^{-1}$ ,  $k_2 = (4.6 \pm 0.2) + 105 \text{ M}^{-1} \text{ s}^{-1}$ ; 4-bromophenylboronic acid,  $k_1 = (5.5 \pm 0.2) + 104 \text{ M}^{-1} \text{ s}^{-1}$ ,  $k_2 = (3.6 \pm 0.2) + 104 \text{ M}^{-1} \text{ s}^{-1}$ ; and 4-iodophenylboronic acid,  $k_1 = (1.1 \pm 0.2) + 105 \text{ M}^{-1} \text{ s}^{-1}$ ,  $k_2 = (1.3 \pm 0.1) + 104 \text{ M}^{-1} \text{ s}^{-1}$ . 4-Biphenylboronic acid, which shows comparable luminescent enhancement to 4-iodophenol, has the highest reactivity in the reduction of both compds. I and II among the three arylboronic acid derivs. tested.

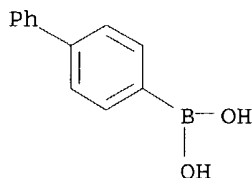
CC 7-3 (Enzymes)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6, Boronic acid, (4-iodophenyl)- 5467-74-3, 4-Bromophenylboronic acid 9003-99-0, Peroxidase  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(rate consts. for reactions of horseradish peroxidase compds. I and II with 4-substituted arylboronic acids)

IT 5122-94-1, 4-Biphenylboronic acid 5122-99-6, Boronic acid, (4-iodophenyl)- 5467-74-3, 4-Bromophenylboronic acid  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(rate consts. for reactions of horseradish peroxidase compds. I and II with 4-substituted arylboronic acids)

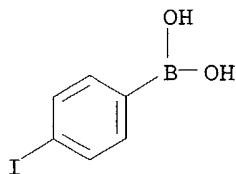
RN 5122-94-1 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)

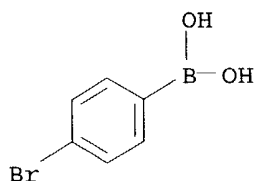


RN 5122-99-6 HCAPLUS

CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



RN 5467-74-3 HCAPLUS  
 CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 35 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 1993:644979 HCAPLUS  
 DOCUMENT NUMBER: 119:244979  
 TITLE: Organoboron compounds as **chemiluminescence**  
 enhancers  
 INVENTOR(S): Kricka, Larry Jan  
 PATENT ASSIGNEE(S): British Technology Group Ltd., UK  
 SOURCE: PCT Int. Appl., 36 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

| PATENT NO.                                                         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------------------------------------------------------|------|----------|-----------------|----------|
| WO 9316195                                                         | A1   | 19930819 | WO 1993-GB271   | 19930210 |
| W: AU, CA, FI, JP                                                  |      |          |                 |          |
| RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE |      |          |                 |          |
| AU 9334598                                                         | A1   | 19930903 | AU 1993-34598   | 19930210 |
| AU 665234                                                          | B2   | 19951221 |                 |          |
| GB 2265459                                                         | A1   | 19930929 | GB 1993-2573    | 19930210 |
| GB 2265459                                                         | B2   | 19951206 |                 |          |
| ZA 9300922                                                         | A    | 19940810 | ZA 1993-922     | 19930210 |
| EP 626016                                                          | A1   | 19941130 | EP 1993-903259  | 19930210 |
| EP 626016                                                          | B1   | 19980603 |                 |          |
| R: BE, CH, DE, ES, FR, GB, IE, IT, LI, NL, SE                      |      |          |                 |          |
| JP 07503988                                                        | T2   | 19950427 | JP 1993-513898  | 19930210 |
| ES 2121991                                                         | T3   | 19981216 | ES 1993-903259  | 19930210 |
| FI 9403710                                                         | A    | 19940810 | FI 1994-3710    | 19940810 |
| PRIORITY APPLN. INFO.:                                             |      |          | GB 1992-2769    | 19920210 |
|                                                                    |      |          | GB 1992-16784   | 19920807 |
|                                                                    |      |          | WO 1993-GB271   | 19930210 |

OTHER SOURCE(S): MARPAT 119:244979  
 AB Organoboron compds. I [R = H, Bu, 4'-ClC6H4, 3',5'-Cl2C6H3, or (OR)2 =



O,O-propylene; W = H, OH, Me, MeO, Cl, etc.; X = H, Me, Cl, NH<sub>2</sub>, NO<sub>2</sub>, etc.; Y = H, Me, CO<sub>2</sub>H, Cl, etc.; Z = H, 5- or 6-Cl, 5-Br, etc.] increase the light output and/or signal from a **chemiluminescence** reaction involving a dihydrophthalazinedione, a peroxidase, and an oxidant. Compds. increasing the signal:background ratio by >25% were selected as **chemiluminescence** enhancers for use in diagnostic immunoassays.

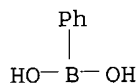
- IC ICM C12Q001-28  
 CC 9-10 (Biochemical Methods)  
 Section cross-reference(s): 79, 80  
 ST organoboron compd **chemiluminescence** enhancer  
 IT **Immunoassay**  
     **Spectrochemical analysis**  
     (chemiluminescence, signal enhancers for, organoboron compds. as)  
 IT 98-80-6, Phenylboronic acid 1679-18-1 2848-16-0  
     4151-80-8 4406-77-3 5122-94-1  
     5122-99-6, p-Iodophenylboronic acid 5467-74-3,  
     p-Bromophenylboronic acid 5720-05-8 13331-27-6,  
     3-Nitrophenylboronic acid 13922-41-3 15323-04-3  
     16419-60-6 16986-25-7 17865-11-1, 4-  
     (Trimethylsilyl)benzeneboronic acid 24493-75-2 30418-59-8  
     51067-38-0 63503-60-6 80500-28-3  
     89694-45-1 96983-22-1 149196-90-7 151169-66-3  
     151169-67-4, 4-Chloro-3-nitrophenylboronic acid  
     151169-68-5 151169-69-6 151169-70-9  
     151169-71-0 151169-72-1 151169-73-2  
     151169-74-3 151169-75-4 151169-76-5  
     151196-37-1 151233-30-6  
     RL: ANST (Analytical study)  
     (as **chemiluminescence** enhancer)  
 IT 9003-99-0, Peroxidase  
     RL: ANST (Analytical study)  
     (chemiluminescent reaction involving dihydrophthalazinedione  
     and oxidant and, organoboron compds. as **chemiluminescence**  
     enhancers for)  
 IT 7722-84-1, Hydrogen peroxide, reactions  
     RL: RCT (Reactant); RACT (Reactant or reagent)  
     (chemiluminescent reaction involving dihydrophthalazinedione  
     and peroxidase and, organoboron compds. as **chemiluminescence**  
     enhancers for)  
 IT 521-31-3, Luminol  
     RL: ANST (Analytical study)  
     (chemiluminescent reaction involving oxidant and peroxidase  
     and, organoboron compds. as **chemiluminescence** enhancers for)  
 IT 1445-69-8  
     RL: ANST (Analytical study)  
     (chemiluminescent reaction involving peroxidase and oxidant  
     and, organoboron compds. as **chemiluminescence** enhancers for)  
 IT 98-80-6, Phenylboronic acid 1679-18-1 4151-80-8  
     4406-77-3 5122-94-1 5122-99-6,  
     p-Iodophenylboronic acid 5467-74-3, p-Bromophenylboronic acid  
     5720-05-8 13331-27-6, 3-Nitrophenylboronic acid  
     13922-41-3 16419-60-6 17865-11-1,  
     4-(Trimethylsilyl)benzeneboronic acid 30418-59-8  
     51067-38-0 63503-60-6 80500-28-3  
     89694-45-1 96983-22-1 151169-66-3  
     151169-67-4, 4-Chloro-3-nitrophenylboronic acid  
     151169-68-5 151169-69-6 151169-71-0  
     151169-72-1 151169-74-3 151169-75-4

151196-37-1

RL: ANST (Analytical study)  
(as **chemiluminescence** enhancer)

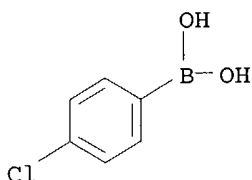
RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)



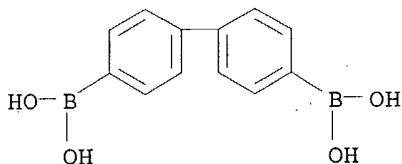
RN 1679-18-1 HCAPLUS

CN Boronic acid, (4-chlorophenyl)- (9CI) (CA INDEX NAME)



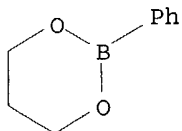
RN 4151-80-8 HCAPLUS

CN Boronic acid, [1,1'-biphenyl]-4,4'-diylbis- (9CI) (CA INDEX NAME)



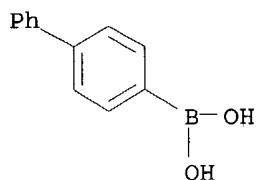
RN 4406-77-3 HCAPLUS

CN 1,3,2-Dioxaborinane, 2-phenyl- (9CI) (CA INDEX NAME)

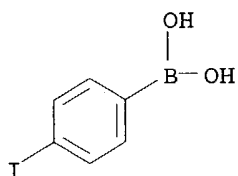


RN 5122-94-1 HCAPLUS

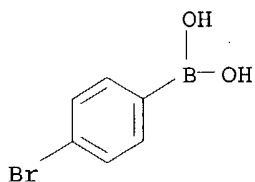
CN Boronic acid, [1,1'-biphenyl]-4-yl- (9CI) (CA INDEX NAME)



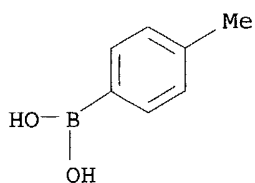
RN 5122-99-6 HCAPLUS  
CN Boronic acid, (4-iodophenyl)- (9CI) (CA INDEX NAME)



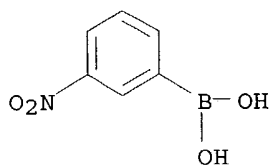
RN 5467-74-3 HCAPLUS  
CN Boronic acid, (4-bromophenyl)- (9CI) (CA INDEX NAME)



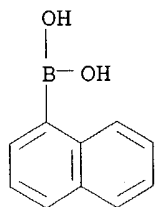
RN 5720-05-8 HCAPLUS  
CN Boronic acid, (4-methylphenyl)- (9CI) (CA INDEX NAME)



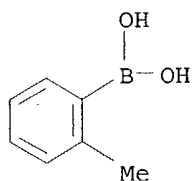
RN 13331-27-6 HCAPLUS  
CN Boronic acid, (3-nitrophenyl)- (9CI) (CA INDEX NAME)



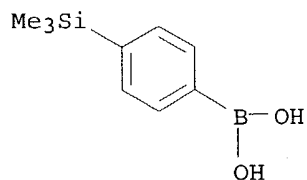
RN 13922-41-3 HCAPLUS  
CN Boronic acid, 1-naphthalenyl- (9CI) (CA INDEX NAME)



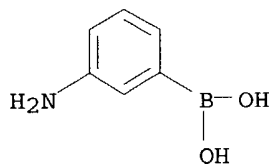
RN 16419-60-6 HCAPLUS  
CN Boronic acid, (2-methylphenyl)- (9CI) (CA INDEX NAME)



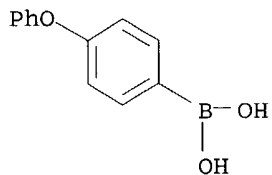
RN 17865-11-1 HCAPLUS  
CN Boronic acid, [4-(trimethylsilyl)phenyl]- (9CI) (CA INDEX NAME)



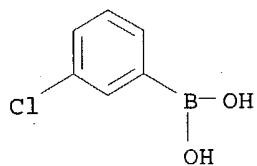
RN 30418-59-8 HCAPLUS  
CN Boronic acid, (3-aminophenyl)- (9CI) (CA INDEX NAME)



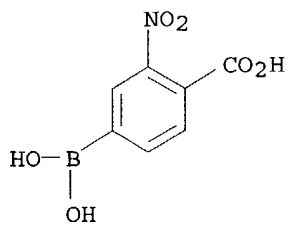
RN 51067-38-0 HCAPLUS  
CN Boronic acid, (4-phenoxyphenyl)- (9CI) (CA INDEX NAME)



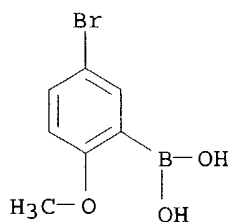
RN 63503-60-6 HCAPLUS  
CN Boronic acid, (3-chlorophenyl)- (9CI) (CA INDEX NAME)



RN 80500-28-3 HCAPLUS  
CN Benzoic acid, 4-borono-2-nitro- (6CI, 9CI) (CA INDEX NAME)

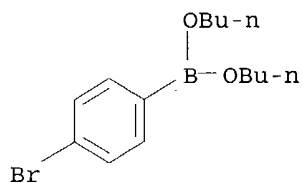


RN 89694-45-1 HCAPLUS  
CN Boronic acid, (5-bromo-2-methoxyphenyl)- (9CI) (CA INDEX NAME)



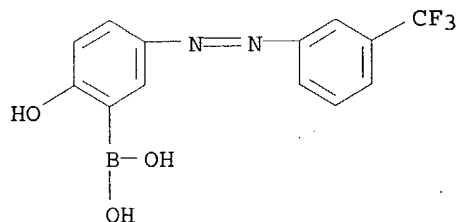
RN 96983-22-1 HCAPLUS

CN Boronic acid, (4-bromophenyl)-, dibutyl ester (9CI) (CA INDEX NAME)



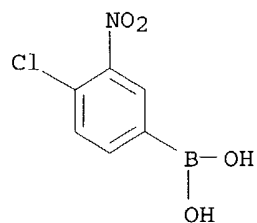
RN 151169-66-3 HCAPLUS

CN Boronic acid, [2-hydroxy-5-[[3-(trifluoromethyl)phenyl]azo]phenyl]- (9CI)  
(CA INDEX NAME)



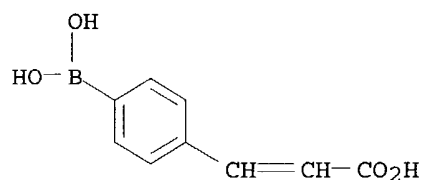
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CN Boronic acid, (4-chloro-3-nitrophenyl)- (9CI) (CA INDEX NAME)

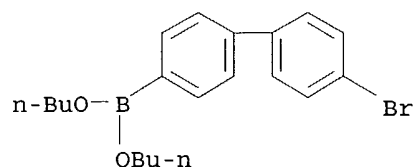


RN 151169-68-5 HCAPLUS

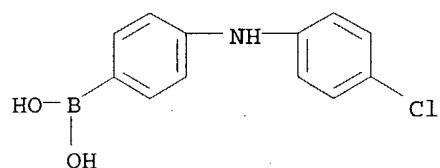
CN 2-Propenoic acid, 3-(4-boronophenyl)- (9CI) (CA INDEX NAME)



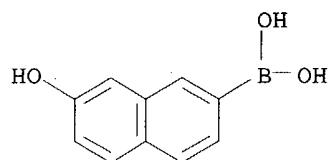
RN 151169-69-6 HCAPLUS  
CN Boronic acid, (4'-bromo[1,1'-biphenyl]-4-yl)-, dibutyl ester (9CI) (CA INDEX NAME)



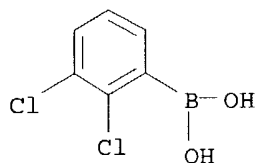
RN 151169-71-0 HCAPLUS  
CN Boronic acid, [4-[(4-chlorophenyl)amino]phenyl]- (9CI) (CA INDEX NAME)



RN 151169-72-1 HCAPLUS  
CN Boronic acid, (7-hydroxy-2-naphthalenyl)- (9CI) (CA INDEX NAME)

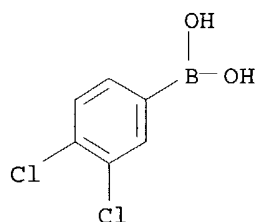


RN 151169-74-3 HCAPLUS  
CN Boronic acid, (2,3-dichlorophenyl)- (9CI) (CA INDEX NAME)



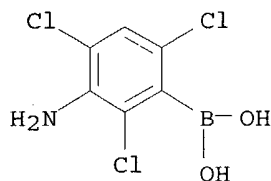
RN 151169-75-4 HCAPLUS

CN Boronic acid, (3,4-dichlorophenyl)- (9CI) (CA INDEX NAME)



RN 151196-37-1 HCAPLUS

CN Boronic acid, (3-amino-2,4,6-trichlorophenyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 36 OF 36 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1990:213569 HCAPLUS

DOCUMENT NUMBER: 112:213569

TITLE: Tridentate conjugates for competitive immunoassays

INVENTOR(S): Oh, Chan S.; Sternberg, James C.

PATENT ASSIGNEE(S): Beckman Instruments, Inc., USA

SOURCE: Eur. Pat. Appl., 40 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO.                                            | KIND | DATE     | APPLICATION NO. | DATE     |
|-------------------------------------------------------|------|----------|-----------------|----------|
| EP 310361                                             | A2   | 19890405 | EP 1988-309002  | 19880929 |
| EP 310361                                             | A3   | 19890524 |                 |          |
| R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE |      |          |                 |          |
| WO 8903041                                            | A2   | 19890406 | WO 1988-US3368  | 19880930 |
| WO 8903041                                            | A3   | 19890420 |                 |          |



W: AU, JP

RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE

|             |    |          |                |          |
|-------------|----|----------|----------------|----------|
| AU 8826056  | A1 | 19890418 | AU 1988-26056  | 19880930 |
| AU 623352   | B2 | 19920514 |                |          |
| US 5168057  | A  | 19921201 | US 1991-768118 | 19910930 |
| JP 06222058 | A2 | 19940812 | JP 1992-225325 | 19920731 |
| JP 2627124  | B2 | 19970702 |                |          |
| US 5661019  | A  | 19970826 | US 1995-410014 | 19950322 |
| US 5851778  | A  | 19981222 | US 1997-832143 | 19970402 |
|             |    |          | US 1987-103093 | 19870930 |
|             |    |          | WO 1988-US3368 | 19880930 |
|             |    |          | US 1991-768118 | 19910930 |
|             |    |          | US 1992-911827 | 19920710 |
|             |    |          | US 1995-410014 | 19950322 |

PRIORITY APPLN. INFO.:

AB A tridentate conjugate for competitive immunoassays has 3 chemical moieties, or tridentate members, attached through an appropriate spacer moiety. At least 2 of the tridentate members are relatively small mols. (e.g. ligands, haptens), usually .ltorsim.7000 daltons. The particular appropriate spacer moiety selected for a tridentate imparts certain steric properties to the tridentate conjugate. In 1 embodiment, the binding of a macromol. specific binding partner to one of the tridentate members sterically inhibits the binding of a different macromol. to another tridentate member. In another embodiment, the binding of a 1st tridentate member to a macromol. restricts the subsequent binding of a 2nd tridentate member to a proximate location on the same macromol. Thus, a biotin-theophylline-lysine conjugate (preparation described) was reacted with DNP-bis(aminocaproic acid) N-hydroxysuccinimide ester (preparation described) to form a biotin-theophylline-DNP conjugate. Theophylline amine (I) was determined in a nephelometric inhibition immunoassay by mixing the conjugate with anti-theophylline monoclonal antibody, anti-DNP antibody, avidin, and samples containing the analyte. Free I competed with theophylline in the conjugate for the anti-theophylline monoclonal antibody. Increasing concns. of I resulted in an increased nephelometric signal.

IC ICM G01N033-531

ICS G01N033-94; G01N033-532

CC 9-10 (Biochemical Methods)

IT Luminescent substances

(chemi-, conjugates with haptens and macromols., tridentate, for competitive immunoassays)

IT Immunochemical analysis

(chemiluminescence energy-transfer immunoassay, tridentate conjugates for, preparation of)

IT 81-88-9D, tridentate conjugates with haptens and macromols.

98-80-6D, Phenyl boronic acid, tridentate conjugates with haptens and macromols. 1445-69-8D, tridentate conjugates with haptens and macromols. 2321-07-5D, Fluorescein, tridentate conjugates with haptens and macromols. 7440-31-5D, Tin, protoporphyrin complexes, tridentate conjugates with haptens and macromols. 7440-66-6D, Zinc, protoporphyrin complexes, tridentate conjugates with haptens and macromols. 9003-99-0D, Peroxidase, tridentate conjugates with haptens and macromols. 109392-90-7D, tridentate conjugates with haptens and macromols. 9001-37-0D, Glucose oxidase, tridentate conjugates with haptens and macromols. 9001-40-5D, Glucose-6-phosphate dehydrogenase, tridentate conjugates with haptens and macromols. 9001-51-8D, Hexokinase, tridentate conjugates with haptens and macromols.

RL: ANST (Analytical study)

(for competitive immunoassays)

IT 98-80-6D, Phenyl boronic acid, tridentate conjugates with haptens and macromols.

RL: ANST (Analytical study)  
(for competitive immunoassays)

RN 98-80-6 HCAPLUS

CN Boronic acid, phenyl- (9CI) (CA INDEX NAME)

